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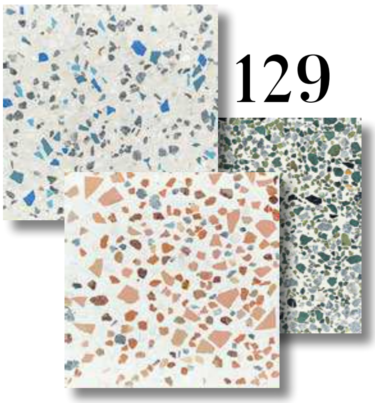
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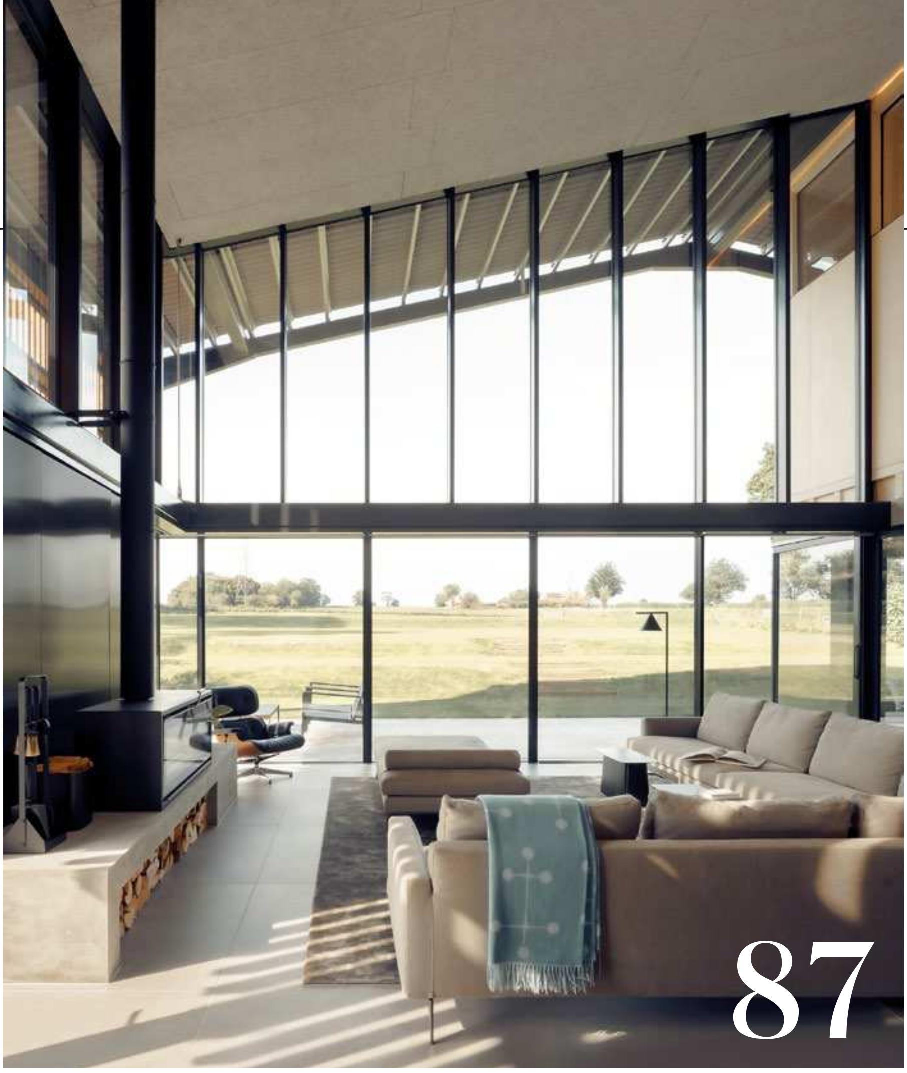

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Rebuilding a crumbling Cumbrian mill
Heat pumps to phase out gas boilers

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Details of the Heat and Buildings Strategy have been released by the government. The eagerly awaited policy includes a plan for reducing the carbon emissions of home heating across the country, which forms part of the government's legal commitment to achieve net-zero emissions by 2050.

At the heart of the plan are financial incentives to encourage the take-up of low-carbon heating to reduce reliance on fossil fuel-powered systems. Heat pumps are the frontrunners in the race to implement low-carbon alternatives. Air-source heat pumps (ASHP) transfer warmth from the outdoor air to indoors, while ground-source heat pumps (GSHP) draw warmth from beneath the ground. Both systems run on electricity. You can find out more about them in *Your Guide to Eco Heating*, a free digital magazine published on granddesignsmagazine.com.

The cost of the kit and its installation is a barrier for many. In a bid to reduce the expense, a new Boiler Upgrade Scheme will make £5,000 grants available from April 2022. The hope is that this encourages us to replace worn-out gas boilers with heat pumps. Manufacturers and the government are also consulting on solutions to drive down prices and make them on a par with fossil fuel boilers by 2030. Providing ministers reduce the cost of electricity over the next decade by shifting levies away from electricity bills, they should be no more expensive to run either. Well, that's the plan.

I'd love to know your thoughts on the matter, whether you have a heat pump or not. Drop me an email at info@granddesignsmagazine.com.

KAREN STYLIANIDES, EDITOR

@StylianidesK

GRAND DESIGNS
TV HOUSE EXCLUSIVE!
HOME IMPROVEMENT
AN INSPIRING SELF-BUILD SOLUTION FOR BETTER LIVING

COVER PHOTO
ANDY MATTHEWS

This home in Mansonville, Quebec, Canada, was once an agricultural shed. Turn to page 87 for more

PHOTOGRAPHY ULYSSE LEMERISE BOUCHARD

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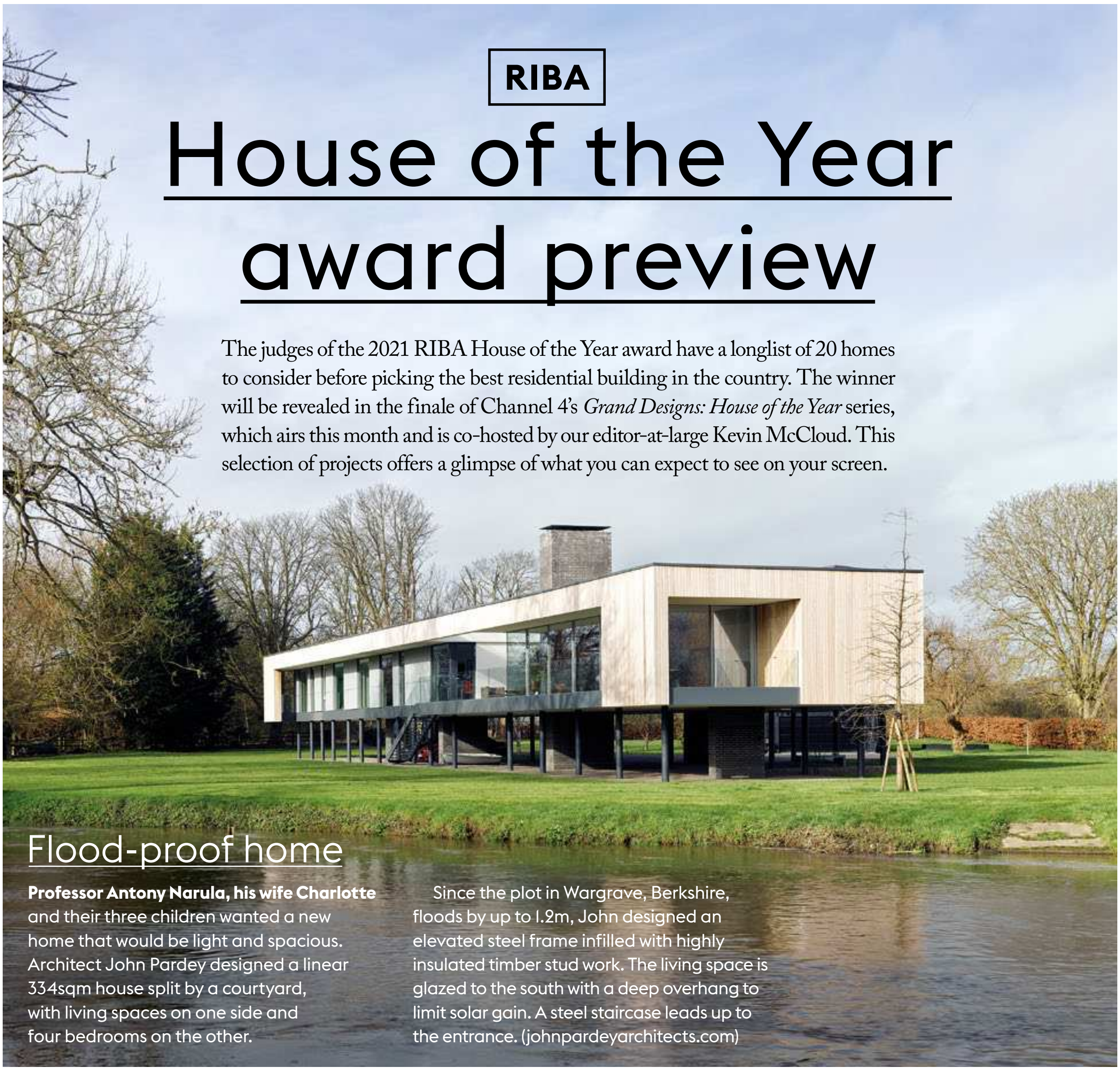
RIBA

House of the Year award preview

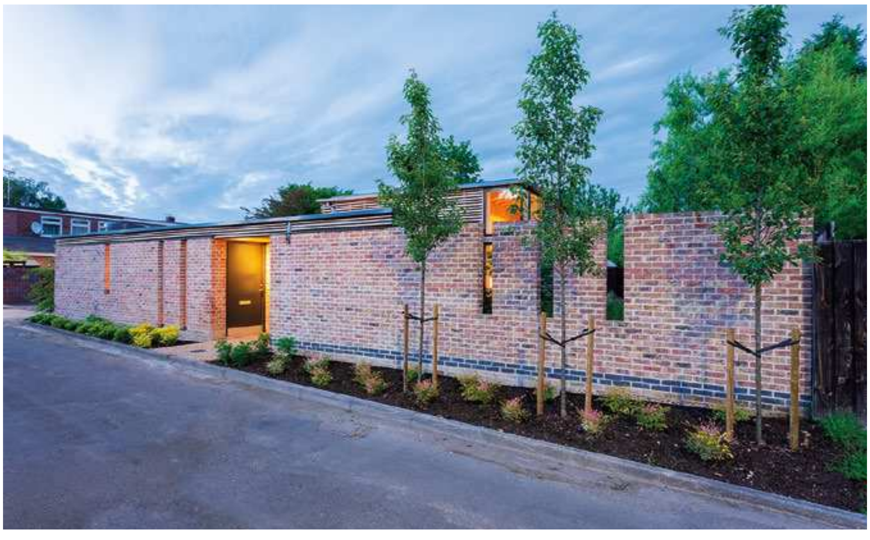
The judges of the 2021 RIBA House of the Year award have a longlist of 20 homes to consider before picking the best residential building in the country. The winner will be revealed in the finale of Channel 4's *Grand Designs: House of the Year* series, which airs this month and is co-hosted by our editor-at-large Kevin McCloud. This selection of projects offers a glimpse of what you can expect to see on your screen.



Flood-proof home

Professor Antony Narula, his wife Charlotte and their three children wanted a new home that would be light and spacious. Architect John Pardey designed a linear 334sqm house split by a courtyard, with living spaces on one side and four bedrooms on the other.

Since the plot in Wargrave, Berkshire, floods by up to 1.2m, John designed an elevated steel frame infilled with highly insulated timber stud work. The living space is glazed to the south with a deep overhang to limit solar gain. A steel staircase leads up to the entrance. (johnpardeyarchitects.com)



Bright new-build

Tucked away behind a garden wall, Simple House in Cambridge integrates into its city setting without compromising the privacy of the new home or its neighbours.

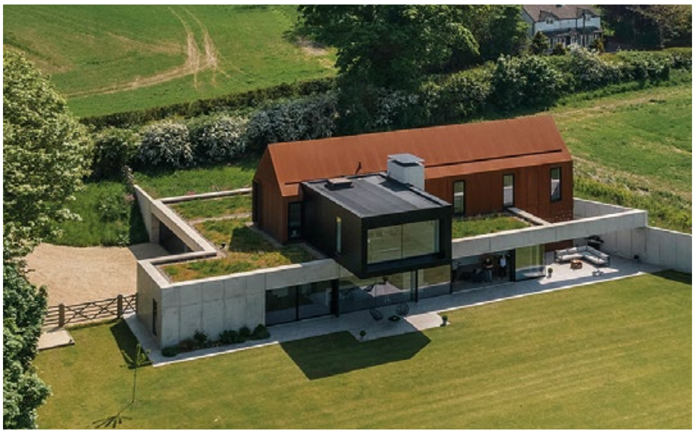
The corner infill site was bought by Jenny Ogilvie and Akimichi Inaba and came with consent for a conventional small house. But architecture practice Haysom Ward Miller turned this on its head and, inspired by the courtyards of traditional Japanese townhouses, devised a 85sqm, two-bedroom single-storey home for just £220,000.

The result is well insulated, naturally ventilated and bright due, in part, to the round rooflights and high-level windows. (haysomwardmiller.co.uk) »

Listed school

James Arkle, director at ArkleBoyce Architects, and his wife Gail have converted a former school near Malton in Yorkshire. They initially made basic alterations so that they could live safely in the Grade II listed building with their three boys.

When they came to extend their home they pulled out all the stops with an 85sqm steel structure finished in coursed stonework to continue the original façade. The reconfigured downstairs includes a kitchen-diner, playroom and living room, with three bedrooms upstairs. The project cost £250,000. (arkleboyce.co.uk)



Rural self-build

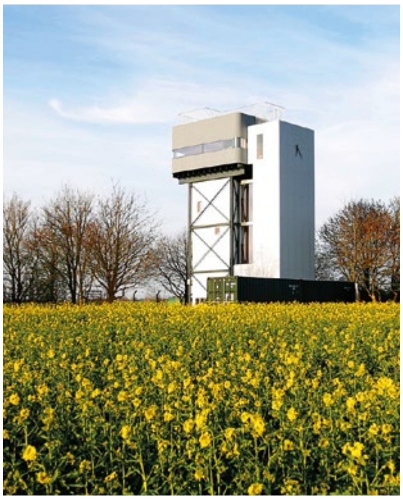
Barrow House takes its name from a bronze-age burial mound in a nearby valley, which can be seen from the cantilevered bedroom. Owners Henry and Jennifer Salmon wanted to build a home for their young family on former farmland on the outskirts of Hatcliffe, a village in North East Lincolnshire.

ID Architecture arranged advance consultations with the planners to help ensure that the 340sqm Paragraph 55 (now 80) home got the green light. The first-floor timber-framed structure includes all five bedrooms, while ground granulated blast-furnace slag (GGBFS) concrete retaining walls anchor the ground floor into the hillside. (idarchitecture.co.uk)

Careful conversion

Once a 19th-century ruin without permission for reuse, this agricultural building in South Hams, Devon, has become a stunning family home. Architectural practice Type updated the former threshing barn and cowshed, while the owners were involved in their home's construction, buying materials and also organising the site.

Type's strategy, approved by the planners, was to avoid adding intrusive new openings in the envelope of the building. The windows are set back and minimal, and complemented by wide pivot doors. Inside, stone columns provide the base for a new timber floor and the roof is in Douglas fir. The 199sqm home has two bedrooms plus a study/bedroom. (typestudio.co.uk)



Repurposed tower

Bought at auction, a derelict steel water tower in Castle Acre, Norfolk, has become a 160sqm second home for Dennis Pedersen and Misia Godebska.

The couple were the main contractor for the project, which was designed by Tonkin Liu architecture studio. Above the ground-floor entrance are two bedrooms with mezzanines in a wooden cube set within the frame of the tower, while the steel tank at the top is a living room. A bridge connects the bedrooms to a new access tower enclosing a cantilevered helical cross-laminated timber staircase. (tonkinliu.co.uk) GD

WORDS CAROLINE RODRIGUES PHOTOGRAPHY JAMES MORRIS, RICHARD FRASER, NICHOLAS WORLEY, RORY GARDINER, DENNIS PEDERSEN, ANDY HASLAM

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Kevin McCloud

When it comes to climate change, buildings can be part of the solution rather than the problem, says our editor-at-large

According to the World Green Building Council, buildings are responsible for almost 40 per cent of global carbon emissions. That percentage breaks down as follows: around 11 per cent is from construction and around 28 per cent from the energy needed to heat, cool and power them. Bet you never thought that nearly a third of carbon emissions come from the fossil fuels spent in heating, cooling and lighting our buildings?

That 28 per cent is a sobering figure because, for all that energy expended, there is nothing to see: no tangible result, no trade-off. For that percentage – which is a staggering 10 billion tonnes per year – we don't get better medical care or improved flood defences. We don't get a new bridge or investment in new solar-tidal energy technology or a million new eco-homes. Ten billion tonnes of carbon emissions result from us wanting to be able to pad round our homes in T-shirts in winter and to avoid looking sweaty in summer.

No wonder our government wants us to buy heat pumps instead of gas boilers. Heat pumps use up to five times less energy and, since they run on electricity, can be powered by a wind farm in the North Sea. Boris Johnson announced Britain's ambitious plans for heat pumps and wind farms in October, just before the UN Climate Change Conference of the Parties (Cop26) summit in Glasgow, although he did not announce extensive funding for either, hoping that industry will step forward to attract investment in wind farms and find enough efficiencies of manufacturing scale to bring down the price of heat pumps.

Tellingly and disappointingly, he also did not announce any plans for promoting behavioural change among his electorate. The official insights team has probably been too busy worrying about the impact of behavioural change policy on Tory voters' allegiance to consider the content of the policy itself. Since I have no allegiance, or any worry about having to get re-elected, I have a number of policies I would instigate immediately if I were prime minister, chief of which is the woolly jumper initiative. I suspect there are as many pullovers on the planet as there are human beings, so the first new climate law would be to make people wear them, together with long johns and thick woollen socks in winter. This would allow us to turn our thermostats down from 21° to 18°C.

A second policy would be to educate everybody in the country about the principles of phase change and latent heat. All adults would have to read a 47-page booklet and learn the lyrics to comedy duo Flanders and Swann's 1964 song 'First and Second Law' (of thermodynamics). This policy would have the advantage of training us to repair our own heat pumps, while also teaching us how to build our own air-conditioning systems with a bucket of water and an empty terracotta plant pot. Most impressively of all, it could slash carbon emissions with the revelation of a summer cooling technology that we can all harness for free: sweating.

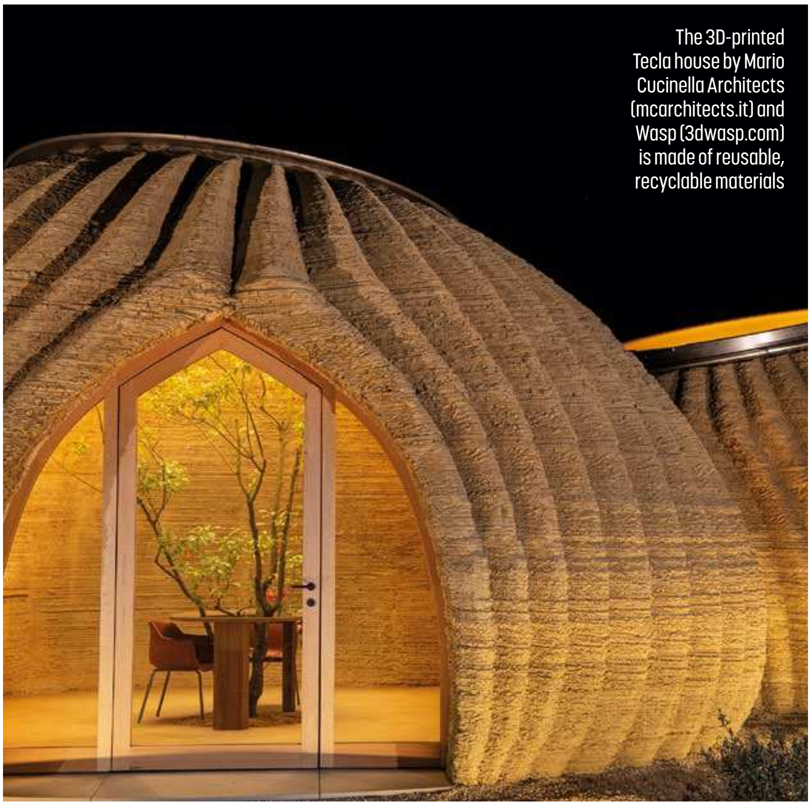
> My first new climate law would be to make people wear woolly jumpers

As Groucho Marx almost said, these are my policies; if you don't like them, I have others. These include the banning of anti-perspirant (see above) and other initiatives such as a high-tog duvet policy; shared bedtime and snuggling, possibly with neighbours (to share body warmth); lukewarm hot drinks (which is both traditional and British); lukewarm ice-cold beer (also traditional and British); window shutters and heavy curtains (not currently fashionable, but to be made mandatory); and competitions for things such as the best-insulated home (along the lines of the best-dressed village). Details to be worked out.

It is going to need brave policies and lots of government funding to drive » change and to do it now. Labour says it would spend £10 billion over three years to kickstart the process. The Green Party has a properly integrated and sophisticated plan. It is also going to take ideas from all of us, some of them brilliant (wind farms, pullovers), others bonkers (lukewarm tea), to solve the biggest problem our civilisation has ever faced: how to reduce and even eliminate carbon emissions in order to keep global temperature rises to within 1.5°C of where they were in pre-industrial times. If we don't, there will be a climate catastrophe.

What exactly does that phrase mean? Well, according to the World Green Building Council, it means that, by 2050, 1.6 billion urban dwellers will be exposed to extreme high temperatures; more than 800 million people living in more than 570 cities will be vulnerable to rising sea levels and coastal flooding. The Intergovernmental Panel on Climate Change (IPCC) says that, after a rise of 1.5 degrees, whole ecosystems will disappear. Also that the 1.5 figure is an average: around the globe, many places will experience far greater temperature rises. Above 1.5 degrees, we'll see unstoppable processes of degradation, desertification and destruction of our planet.

So your ideas are important now more than ever, because it will be the collective ingenuity of humankind that gets us and our planet out of trouble. The irony is that many of the solutions are already in our world, even in our homes – in the insulation in our walls and the smart technology that is driving efficiencies in the ways we heat and light our buildings. There are now intelligent construction materials that are entirely recycled or which have new, low-carbon footprints or even absorb CO2.



The 3D-printed Tecla house by Mario Cucinella Architects (mcarchitects.it) and Wasp (3dwasp.com) is made of reusable, recyclable materials

> It will be the collective ingenuity of humankind that gets our planet out of trouble

The Green Heroes feature at Grand Designs Live has been showcasing these types of ideas every year for 15 years now. The latest and perhaps most persuasive showcase is a virtual exhibition of inspirational projects from around the world. The Build Better Now pavilion (buildbetternow.co) is a collaboration for Cop26 between the World Green Building Council, the UK Green Building Council and more than 40 partners. It is full of ideas and real-world solutions – some technological, some social, some architectural – that can help us all, homeowners, neighbours and governments alike, to work towards the 2050 legally binding target of net-zero emissions.

The built environment is not only part of the problem when it comes to the climate crisis, it's part of the solution. And those solutions are around us here and now. It's all within our grasp. GD

This Devon eco home is insulated with newspaper

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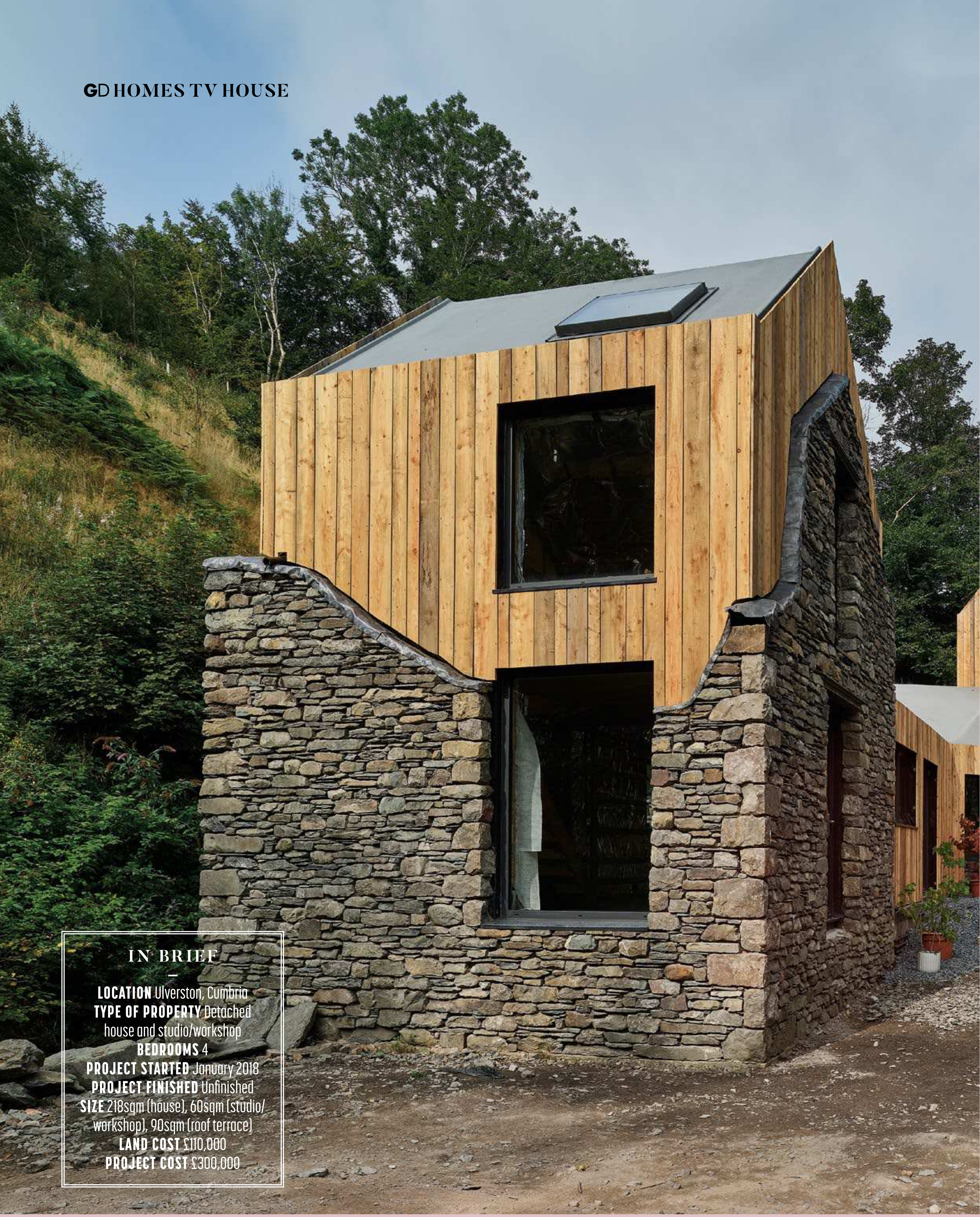
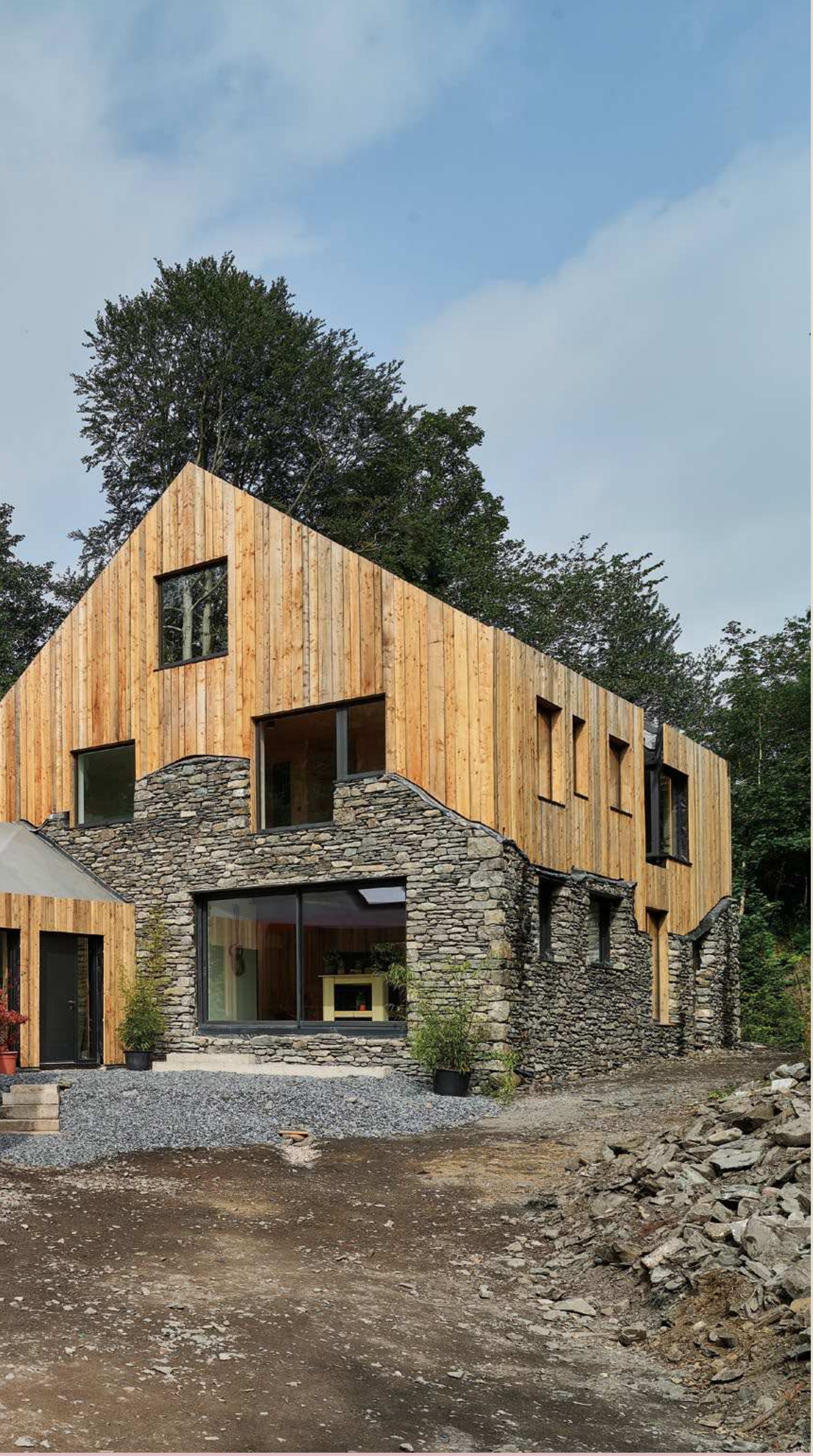


IN BRIEF

LOCATION Ulverston, Cumbria
TYPE OF PROPERTY Detached house and studio/workshop
BEDROOMS 4
PROJECT STARTED January 2018
PROJECT FINISHED Unfinished
SIZE 218sqm (house), 60sqm (studio/workshop), 90sqm (roof terrace)
LAND COST £110,000
PROJECT COST £300,000

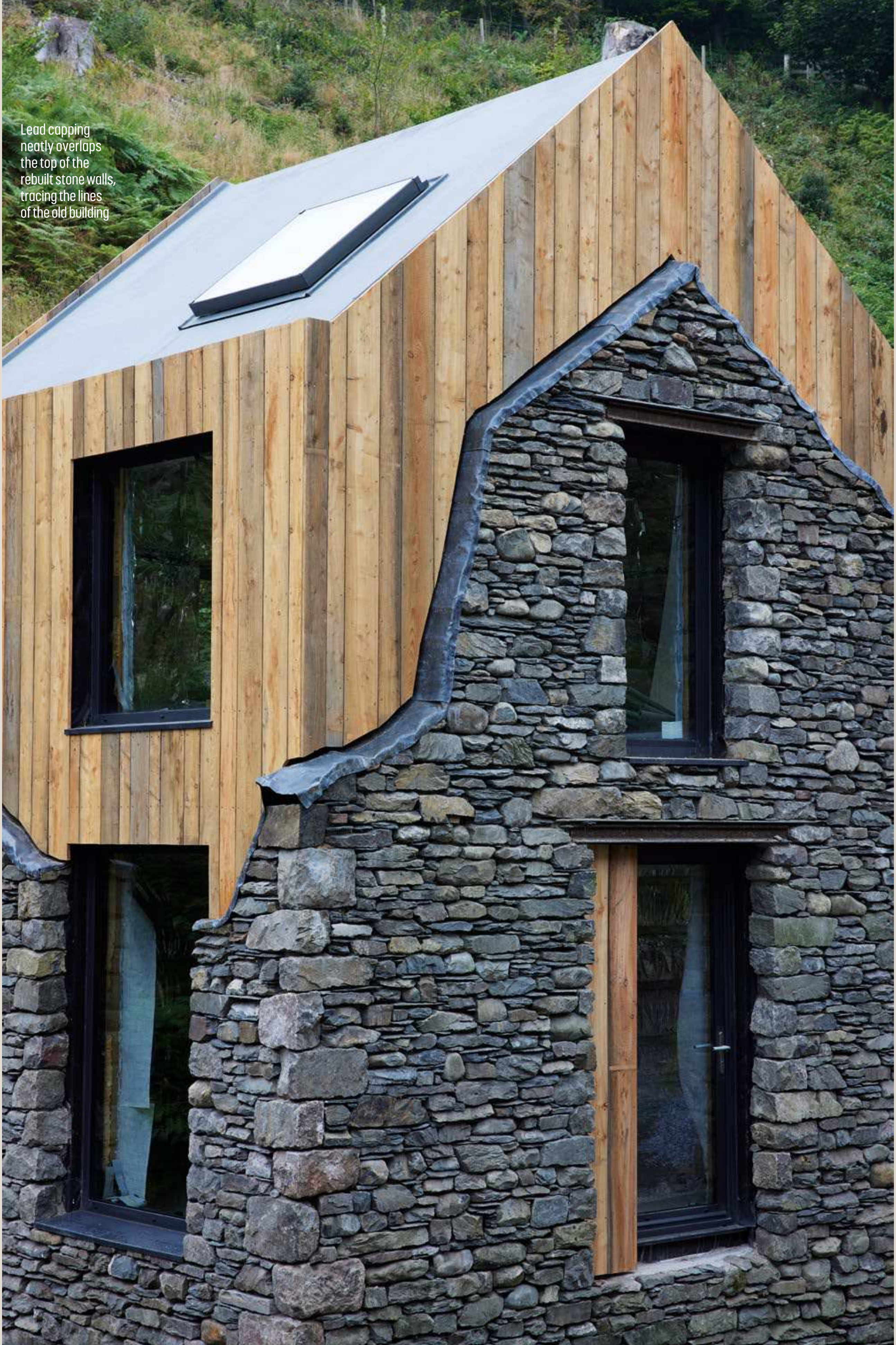


Of time and place

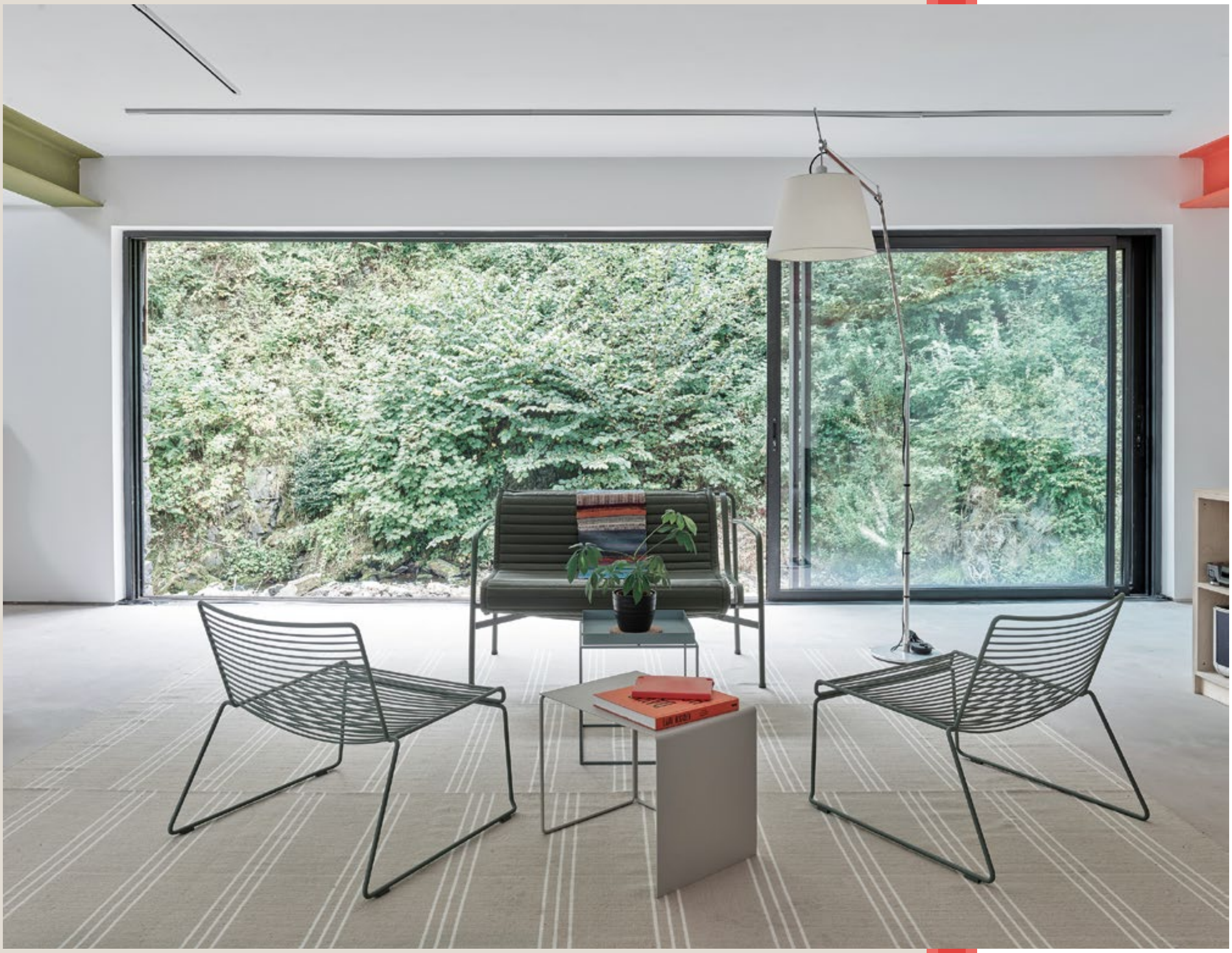
Hoping for a restoration project, but ending up with a complete rebuild, one couple made their home within a ruined mill

WORDS **JAYNE DOWLE**
PHOTOGRAPHY **ANDY HASLAM**

Ruth and Rob's house and studio/workshop have been built on the footprint of the old mill. The upper levels are clad with larch that was grown and milled nine miles away from the site



Lead capping neatly overlaps the top of the rebuilt stone walls, tracing the lines of the old building



Three years into building their own home in a steep tree-lined gully near Ulverston, Cumbria, Ruth Grimshaw and Rob Glass are still smiling, despite having to demolish the 200-year-old ruined water mill they wanted to convert.

Rob, 35, had long been fascinated by the crumbling stone structure, which is next to a stream close to his family's home. Designated a scheduled monument, it was first a water mill, then a blacking mill making charcoal dust for iron forges, and eventually a pigsty – before falling into disrepair for 70 years. When Rob showed it to his partner, Ruth, 31, she fell in love too, and an audacious plan began to take shape. The couple intended to buy the site, though it lacked planning permission, and convert the ruins into an eco-friendly home with an adjoining studio/workshop.

Ruth and Rob met at university in Manchester, where she studied history of art and design and he studied architecture, but they were both keen to leave behind »

ABOVE Rob and Ruth with one of their 16 pet ducks

TOP A broad expanse of glazing in the living area provides views of the lush greenery. The Hay Hee chairs were a 30th birthday present from Ruth's sister

The couple intended to convert the ruins into an eco-friendly home with an adjoining studio/workshop

city life and move back to the countryside of their native Cumbria. 'We looked at a few houses, but we always came back to the mill and our spark of an idea,' Ruth recalls.

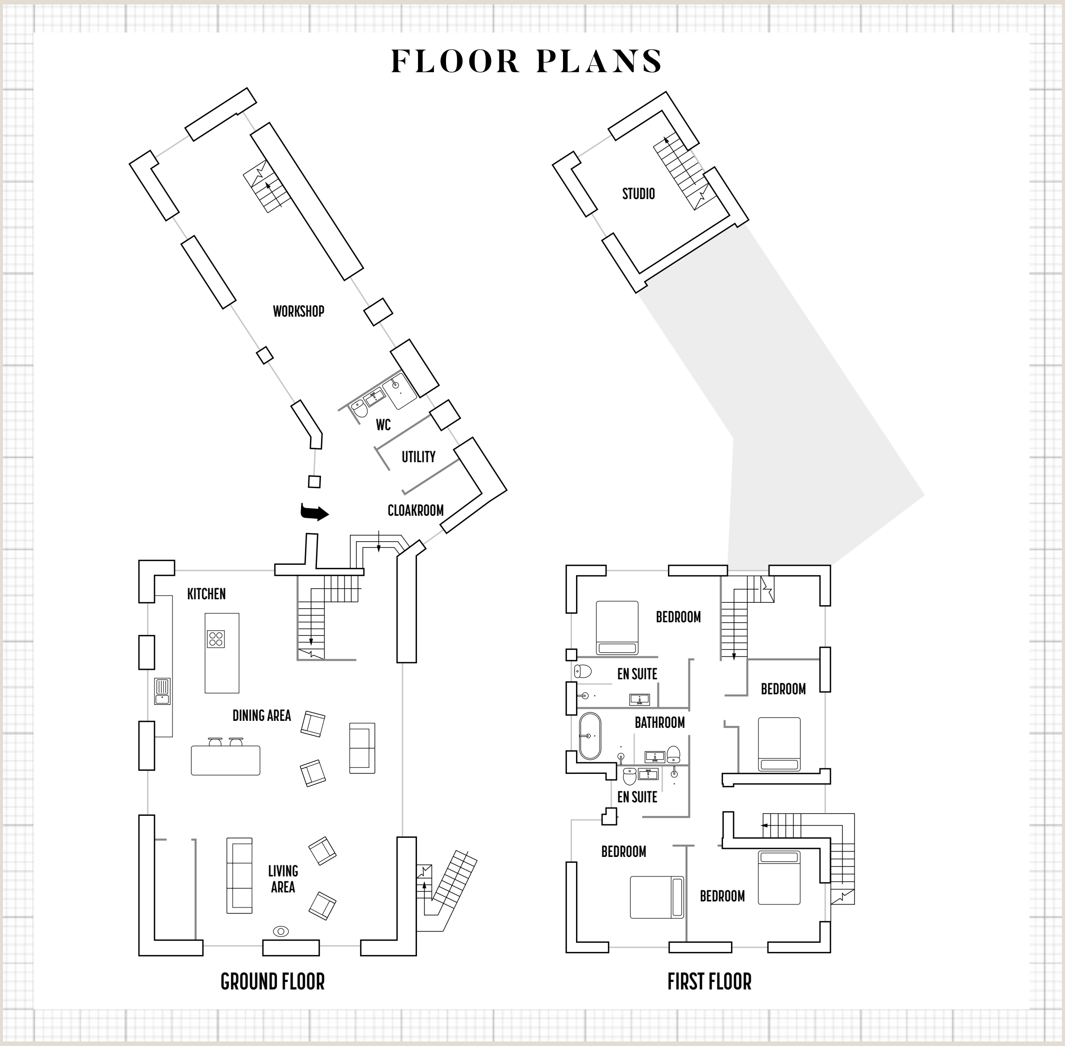
An early snag was that the plot wasn't for sale. 'We asked the owner if he'd consider selling it in January 2015,' says Rob. 'After agreeing a price of £110,000 and giving ourselves two years to gain planning permission, we set about trying to make the project happen.'

They paid for the site by selling Rob's flat, hoping – unsuccessfully – that the building's status might help them attract funding. Instead, they borrowed money from their families, and obtained a mortgage to pay back the loan. The couple worked closely with the local planning authority and Historic England to determine exactly what building work was possible.

In 2016 Ruth joined Rob's Ulverston-based practice Tape Design as co-owner, practice manager and creative collaborator. 'Being a woman in construction isn't easy, but this was my project and there was one chance to get it right, so I got stuck in,' she says. 'There was a lot of 3am research, but I had to know my stuff to be taken seriously.' »

LEFT Pipework for wet underfloor heating is installed beneath the concrete in case it is needed in the future

RIGHT A doll's house by Ferm Living sits on the oriel window looking out on the rock face


FLOOR PLANS
WORKSHOP
WC
UTILITY
CLOAKROOM
KITCHEN
DINING AREA
LIVING AREA
GROUND FLOOR
STUDIO
BEDROOM
EN SUITE
BEDROOM
BATHROOM
EN SUITE
BEDROOM
BEDROOM
FIRST FLOOR

‘After agreeing a price of £110,000 and giving ourselves two years to gain planning permission, we set about trying to make the project happen’

The couple’s planning application was approved in May 2017 and the site clearance started in early January 2018 with the felling of some rotten trees at an unexpected cost of £11,000. ‘The timber will keep the woodburning stove going for years,’ says Ruth.

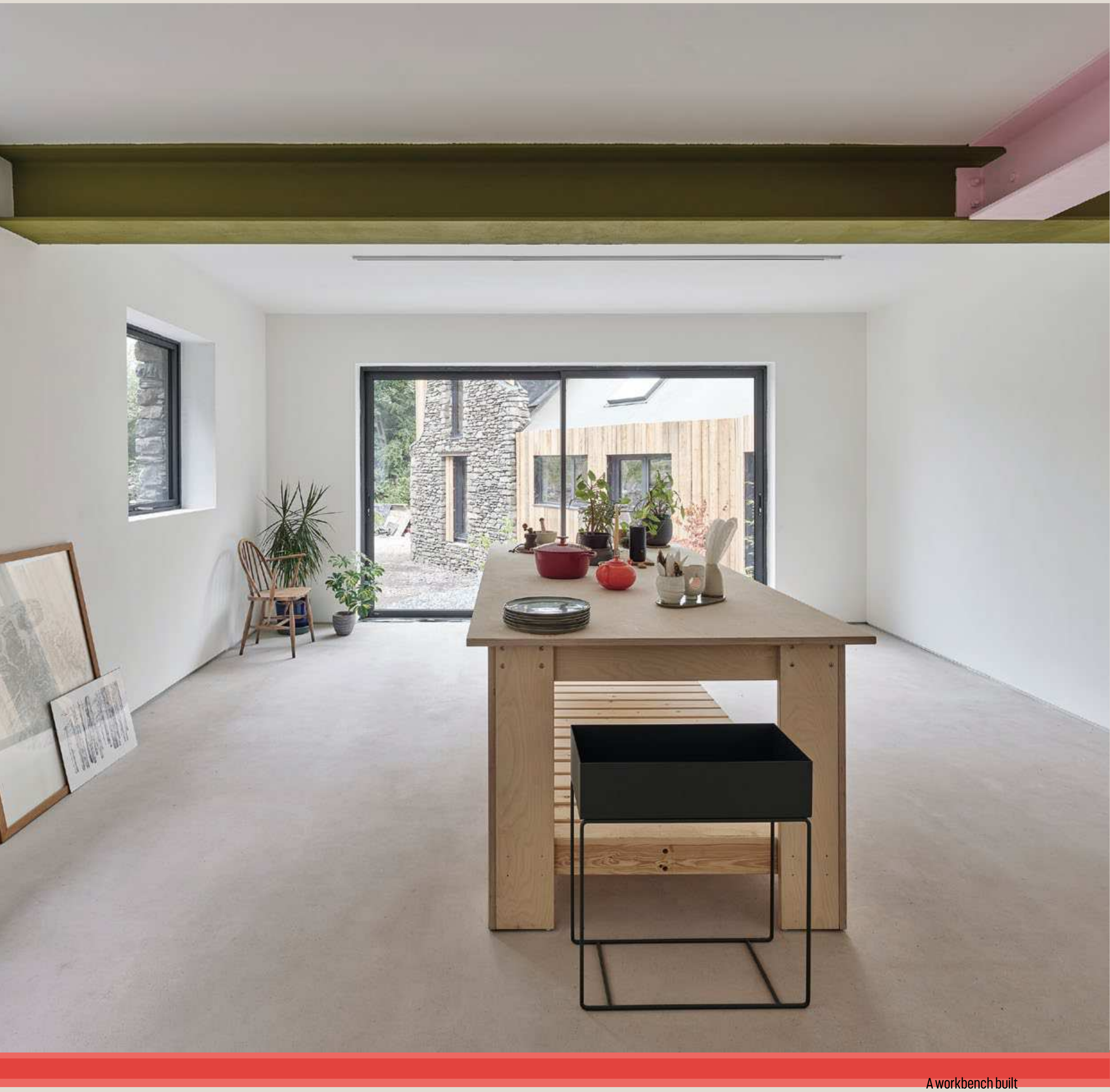
They planned to slot a new single-storey architecture studio/workshop, plus a two-storey, four-bedroom home, inside the tumbledown walls. ‘A simple timber frame would be set within the old mill,’ explains Rob. ‘The wild, restrictive site demanded a clean-lined and meticulously thought-through building to contrast with the rugged landscape.’

But four months into the project the couple’s plan suffered a huge blow when Historic England deemed that the original structure, save for one gable end, was unsafe and must be demolished.

Although devastated, the couple took a pragmatic approach. ‘There has always been, and always will be, a narrative and opinion on how far the conservation of historic sites should go,’ says Ruth. ‘In our case, the building had been left to decay for 70 years and was structurally unsound with no real foundations.’

Using extensive photographical modelling and drawn surveys, the couple mapped out the exact heights and measurements of the old walls, along with the location of the corner blocks. They then demolished the mill – setting aside the stone – and built a timber-framed larch-clad house on new beam-and-block foundations, following the exact footprint of the old structure. Finally, they used the saved stone to rebuild the old walls virtually as they had been before, wrapping them around the new timber.

‘We were confident we could reinstate the shape and form of the original building,’ says Ruth. This phase was painstaking and took two stonemasons 60 days, but the result allows the romantic spirit of the old mill to live on. »



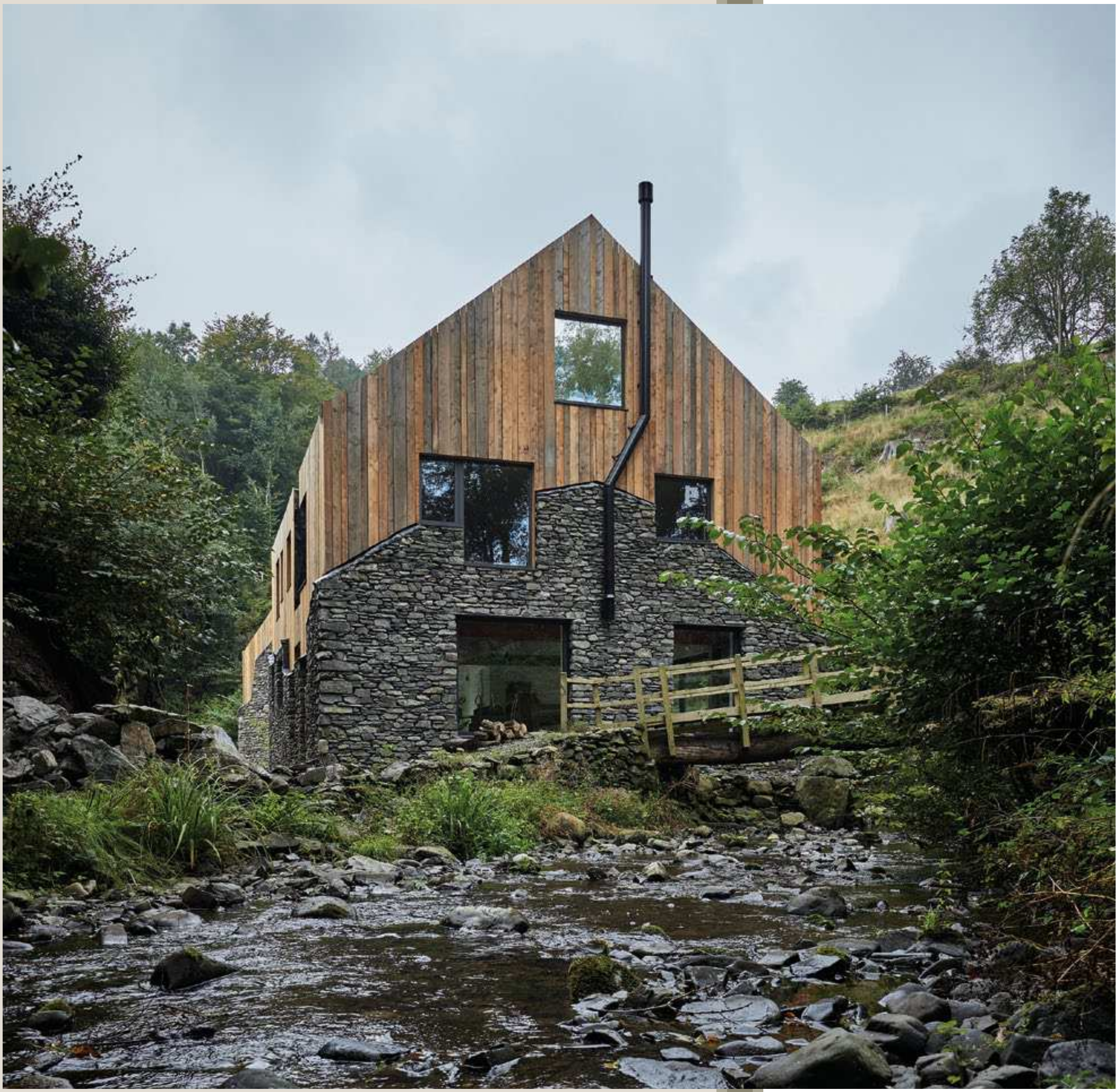
A workbench built by Evergreen Joiners acts as a temporary kitchen island

ABOVE LEFT Using offcuts from the timber frame, Rob's cousin TC Jolly made the dining table and the unit for Rob's vinyl that helps divide the space

H.G.Wells

LEFT The couple's bed stands on a pitch pine floor reclaimed from a Lancashire cotton mill

RIGHT In a gully between a steep bank and a cliff, the house sits above a stream that supplies its water

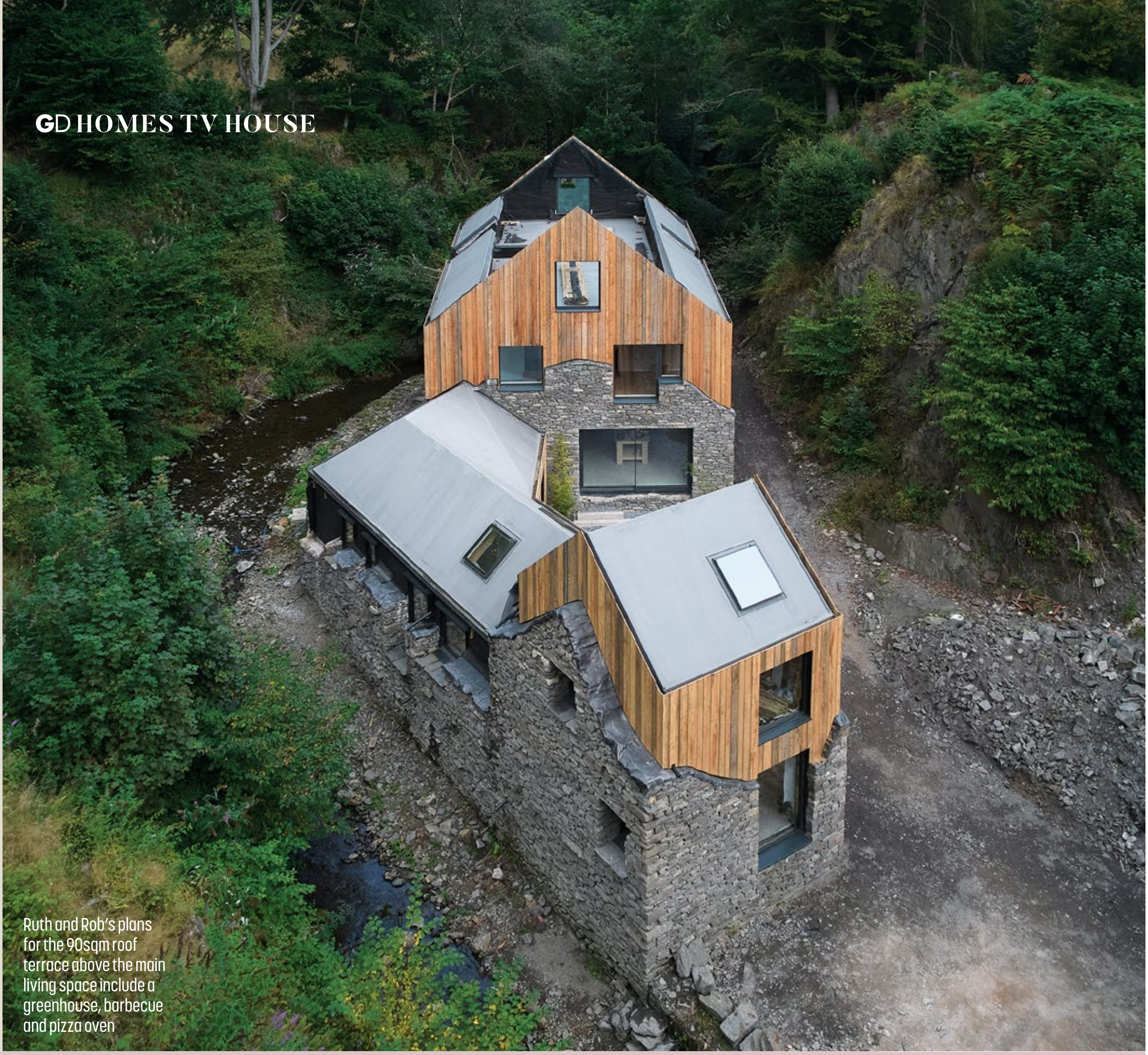


They saved the stone to rebuild the old walls virtually as they had been before, wrapping them around the new timber

Ruth and Rob were careful to make their new home sustainable, so it is insulated to Passivhaus standard and airtight. It also draws its water directly from the stream. 'The price of connecting to the mains was the same as buying a plant that extracts water and cleans it using reverse osmosis,' explains Rob. 'We had a fantastic mechanical and electrical consultant, who happens to be a client, advising us. The cost of buying and installing all the equipment came to £2,000, but we will have no ongoing charges, just maintenance costs to clean the filters.'

Ruth and Rob were both very hands-on throughout the build, and now feel a sense of pride and passion for what they have created. 'The project has reaffirmed how much we enjoy the construction process and how important it is to push for better and more sustainable design in our practice,' says Rob.

The complexity of the build also required them to make personal sacrifices along the way. 'You can't undertake a project like this and not fully commit to it,' explains Ruth. 'My sister had a baby the week of our timber frame delivery and I had to stay on site to make sure things ran smoothly rather than visit my new nephew, which I found really hard. And we've averaged around four hours sleep each night for the past 18 months. While it's been quite a battle, I'm so happy we got there in the end.' GD



Ruth and Rob's plans for the 90sqm roof terrace above the main living space include a greenhouse, barbecue and pizza oven

SUPPLIERS

PROJECT TEAM

Architect and project management Tape Design (tapedesign.co.uk)
Structural engineer Bleasdale Wand (01229 588585)
Forestry work Viking Forestry (vikingforestry.co.uk)
Scaffolding Q Scaffolding (qscaffolding.co.uk)
M&E consultant Alignak (07436 701480)
Electrician Turton & Wood (turtonandwood.co.uk)
Plumbing James Rowlandson (07917 118926)
Plastering Steven French (07515 633072)
Joinery Evergreen Joiners (evergreenjoiners.com), Liam Wrigley (07815 940809), TC Jolly (07741 282137)
Stonework Neil Porter Building & Stonework (07841 638232)
Roofing Permaseal (07733 363524)
Labour Bee Adventures (bee-adventures.co.uk)
Building merchant JT Atkinson (jtatkinson.co.uk)
Plant hire Luscombe Plant Hire (luscombeplanthire.co.uk), Marsh Plant Hire (marshplant.com)

STRUCTURE

Timber frame Lakeland Timber Frame (lakelandtimberframe.co.uk)
Cladding Graythwaite Estate (graythwaite.com)
Open cell spray foam insulation Huntsman Building Solutions (huntsmanbuildingsolutions.com)
Insulation installer Heatlok Installations (heatlok.co.uk)
Vapour control layer Actis (insulation-actis.com)
MVHR BPC Ventilation (bpcventilation.com)
Cavity trays Surecav (surecav.co.uk)
Drip and windowsills Trimform (trimformfabs.co.uk)
UV façade breather membrane Dupont Tyek (dupont.co.uk)
Windows Marlin Windows (marlinwindows.co.uk)

FIXTURES AND FITTINGS

Concrete floor PJ Lambeth & Co (07770 814950), Pure Floor Systems (purefloorsystems.com), Xtreme Polishing Systems (xtremepolishingsystems.com)
Reclaimed timber pitch pine floor The Reclaimed Timber Business (thereclaimedtimberbusiness.co.uk)
HWAM woodburner W&A Todd (01229 889115)
Main track lighting Astro Lighting (astrolighting.com)

FURNITURE AND ACCESSORIES

Stools Hay (hay.dk)
Kitchen workbench, bookshelf, record decks unit, table and oriel window frame TC Jolly
Workshop bench Evergreen Joiners
Bed Ercol (ercol.com)
Tolomeo lamp Artemide (artemide.com)
Goose feather lamps Vita Copenhagen (umage.com)
Rugs Nordic Knots (nordicknots.com)
Side tables Hay
Plant boxes, cluster tables and doll's house Ferm Living (fermliving.com)
Landform print Ben Pawle (benpawle.com)

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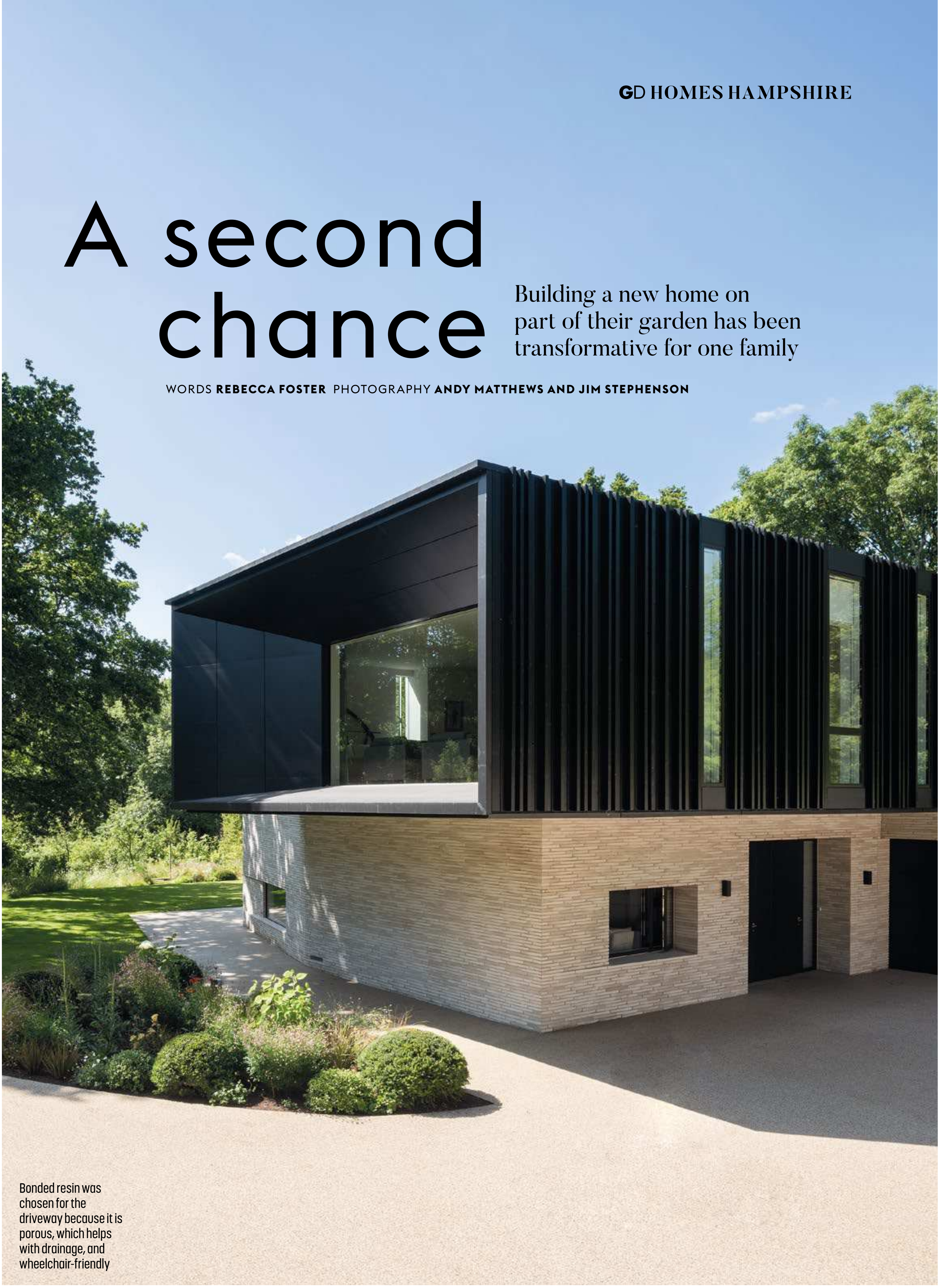
A second chance

Building a new home on part of their garden has been transformative for one family

WORDS **REBECCA FOSTER** PHOTOGRAPHY **ANDY MATTHEWS AND JIM STEPHENSON**

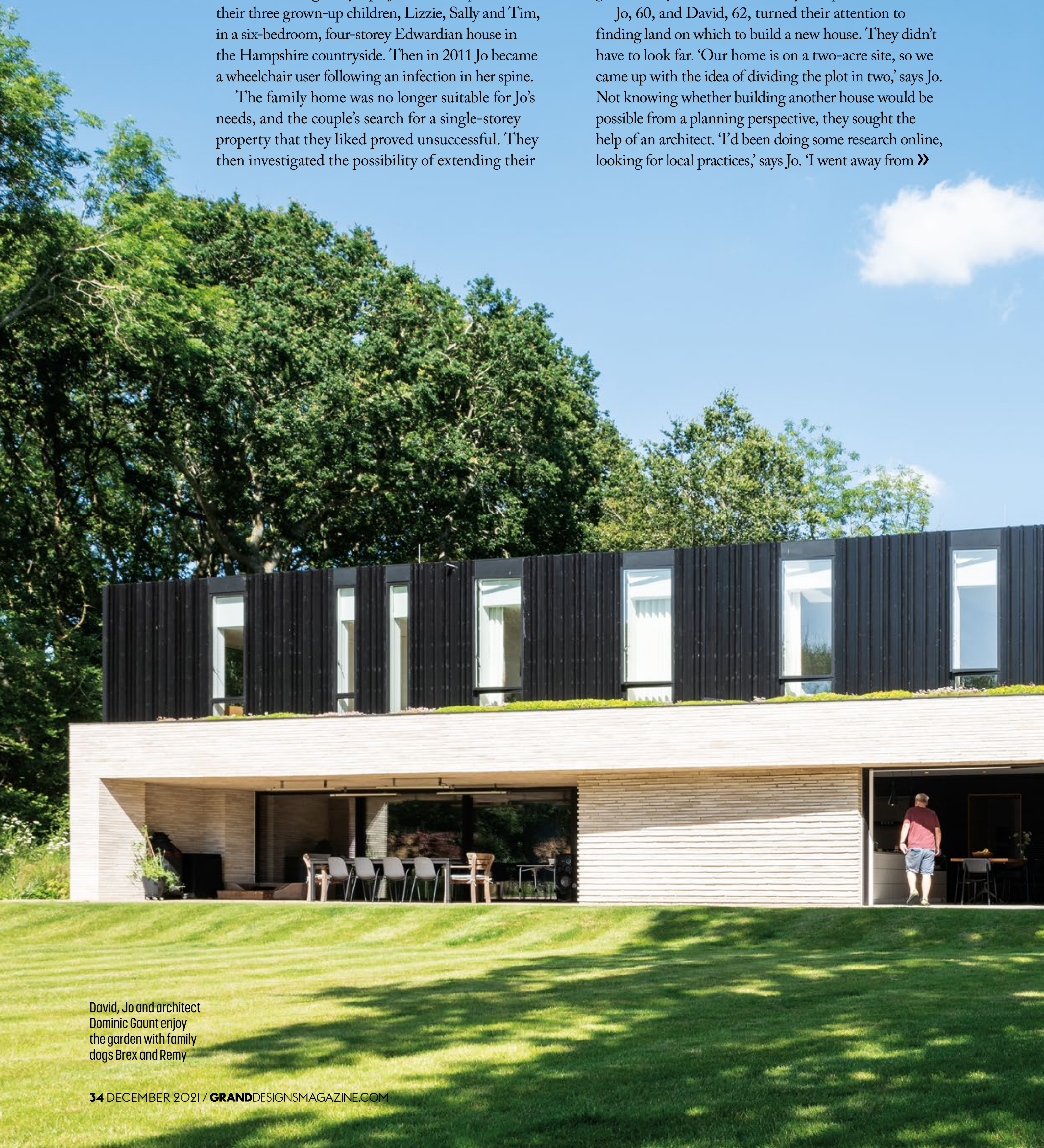


Bonded resin was chosen for the driveway because it is porous, which helps with drainage, and wheelchair-friendly

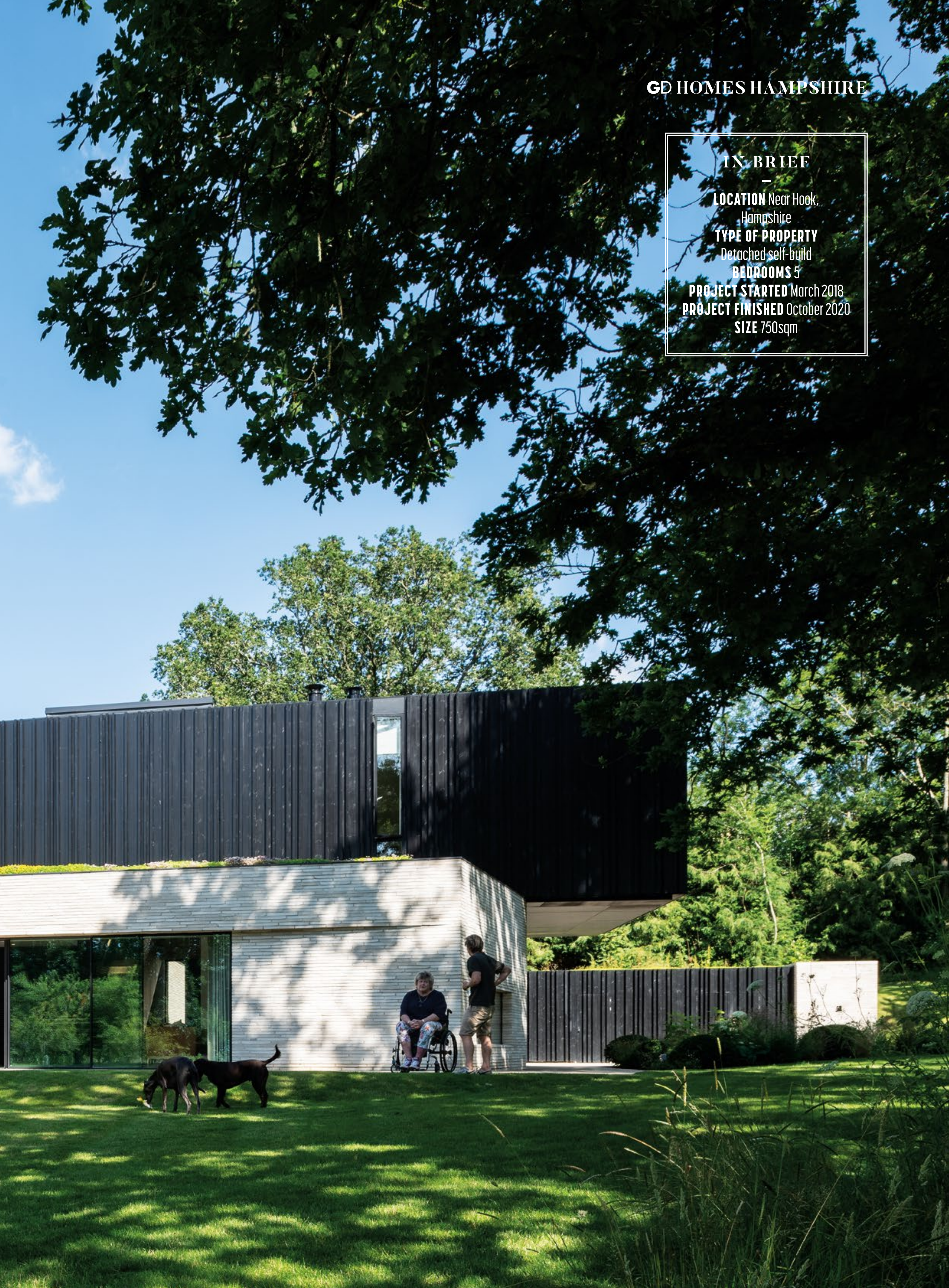
Despite being fans of the TV series, retirees Jo and David Wright had never contemplated taking on their own *Grand Designs*-style project. The couple raised their three grown-up children, Lizzie, Sally and Tim, in a six-bedroom, four-storey Edwardian house in the Hampshire countryside. Then in 2011 Jo became a wheelchair user following an infection in her spine.

The family home was no longer suitable for Jo's needs, and the couple's search for a single-storey property that they liked proved unsuccessful. They then investigated the possibility of extending their home to create a wheelchair-friendly ground floor. 'Building an extension would have left me cut off from everyone,' Jo explains. 'I wanted to be able to go into every room and be entirely independent.'

Jo, 60, and David, 62, turned their attention to finding land on which to build a new house. They didn't have to look far. 'Our home is on a two-acre site, so we came up with the idea of dividing the plot in two,' says Jo. Not knowing whether building another house would be possible from a planning perspective, they sought the help of an architect. 'I'd been doing some research online, looking for local practices,' says Jo. 'I went away from »



David, Jo and architect Dominic Gaunt enjoy the garden with family dogs Brex and Remy

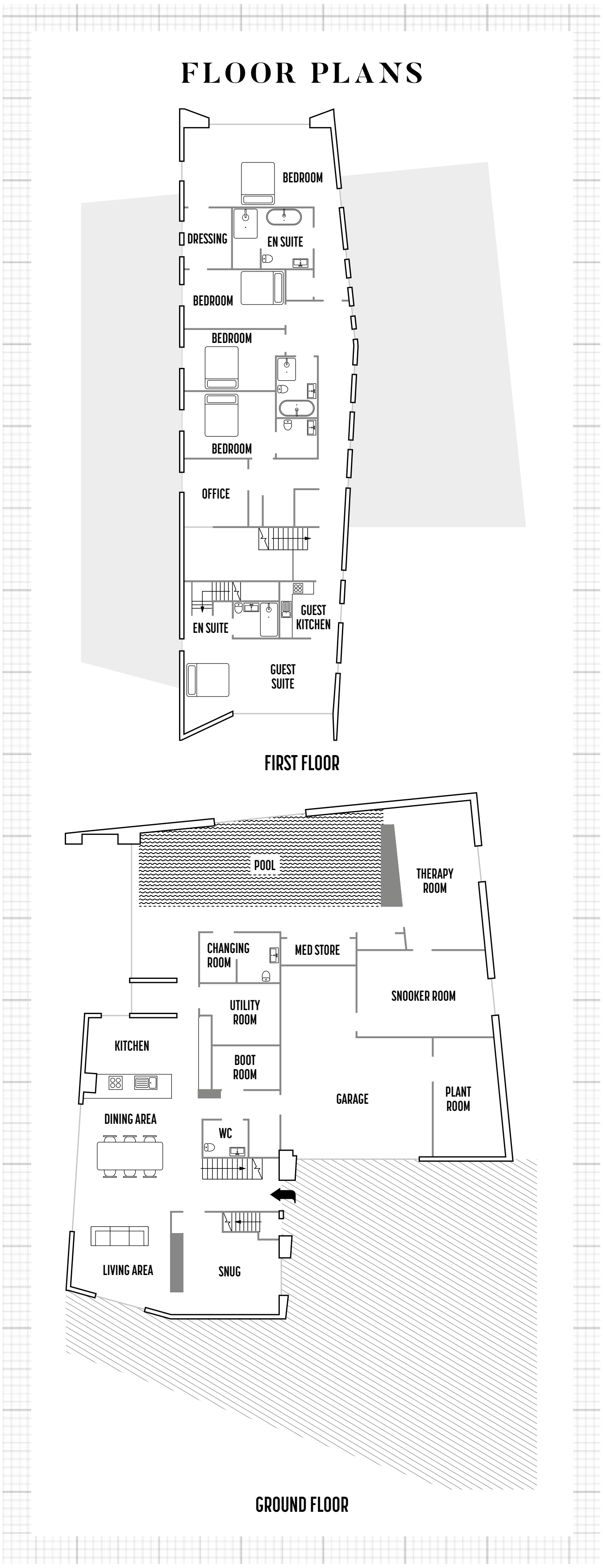


IN BRIEF

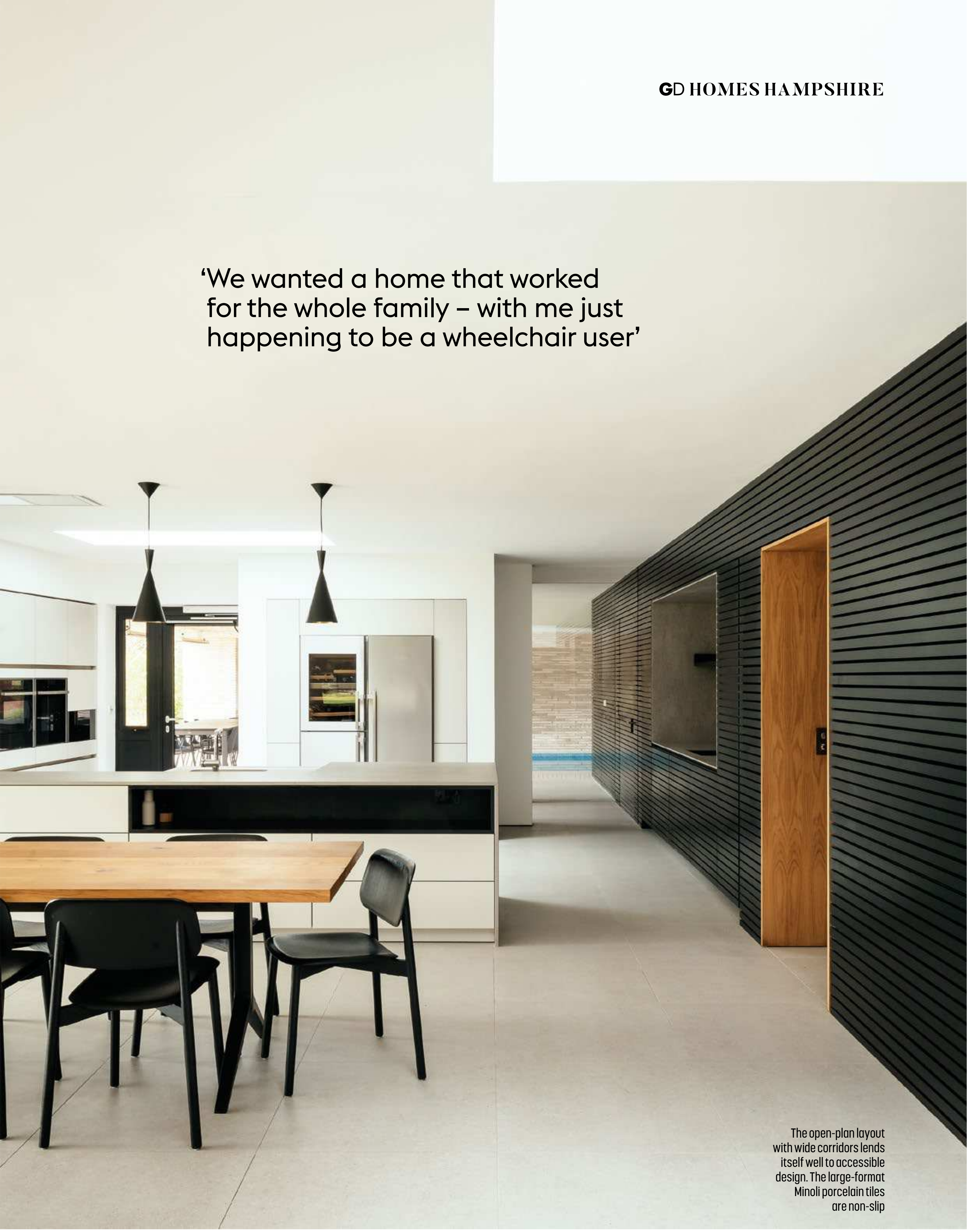
LOCATION Near Hook, Hampshire
TYPE OF PROPERTY Detached self-build
BEDROOMS 5
PROJECT STARTED March 2018
PROJECT FINISHED October 2020
SIZE 750sqm

ABOVE Long, white Danish bricks clad the ground floor, with vertical black timber boards above to help the house blend into its wooded setting

ABOVE The arrangement of furniture in the ground-floor living space provides ample room for Jo to manoeuvre her wheelchair


FLOOR PLANS
BEDROOM
DRESSING
EN SUITE
BEDROOM
BEDROOM
BEDROOM
OFFICE
EN SUITE
GUEST KITCHEN
GUEST SUITE
FIRST FLOOR
POOL
THERAPY ROOM
CHANGING ROOM
MED STORE
SNOOKER ROOM
UTILITY ROOM
KITCHEN
BOOT ROOM
GARAGE
PLANT ROOM
DINING AREA
WC
LIVING AREA
SNUG
GROUND FLOOR

> ‘We wanted a home that worked for the whole family – with me just happening to be a wheelchair user’



The open-plan layout with wide corridors lends itself well to accessible design. The large-format Minoli porcelain tiles are non-slip

LEFT Hardwearing composite Dekton worksurfaces are teamed with sleek, handleless cabinets for a streamlined space

ABOVE The inset sink has been set back within a recess and positioned at a height Jo can reach with ease

the computer and came back to find that an advert for the architecture firm Ayre Chamberlain Gaunt had popped up. We gave them a call, and the rest is history.'

The practice had a successful track record when it came to working with the local planning office, and was open to the couple's ideas. Though Lizzie, Sally and Tim had left to study at their respective universities, the new house needed to be a base to which they could all return. 'Dominic Gaunt and the team listened to us,' says Jo. 'We wanted a home that worked for the whole family – with me just happening to be a wheelchair user.'

The design also evolved from the couple's desire for a complete contrast to their old house. 'It is red brick, with turrets and multiple levels in a Gothic style, whereas the new-build is contemporary,' says Dominic, who is a director at Ayre Chamberlain Gaunt. Inside, the open-plan layout includes level thresholds, along with enough space for a wheelchair to turn.

After bouncing around ideas with Jo and David, the practice presented them with three design concepts. 'We homed in on one option pretty quickly,' says Jo. Once this had been nailed down, the couple obtained outline planning permission to build on an area of their garden fondly known as the football pitch. 'When the kids were younger it was filled with goal posts and the trampoline – it wasn't cultivated garden,' explains Jo.

Going for outline permission before submitting a detailed application afforded an opportunity to test »

LEFT To bring colour into the scheme Jo and David had a rug specially made for the living area

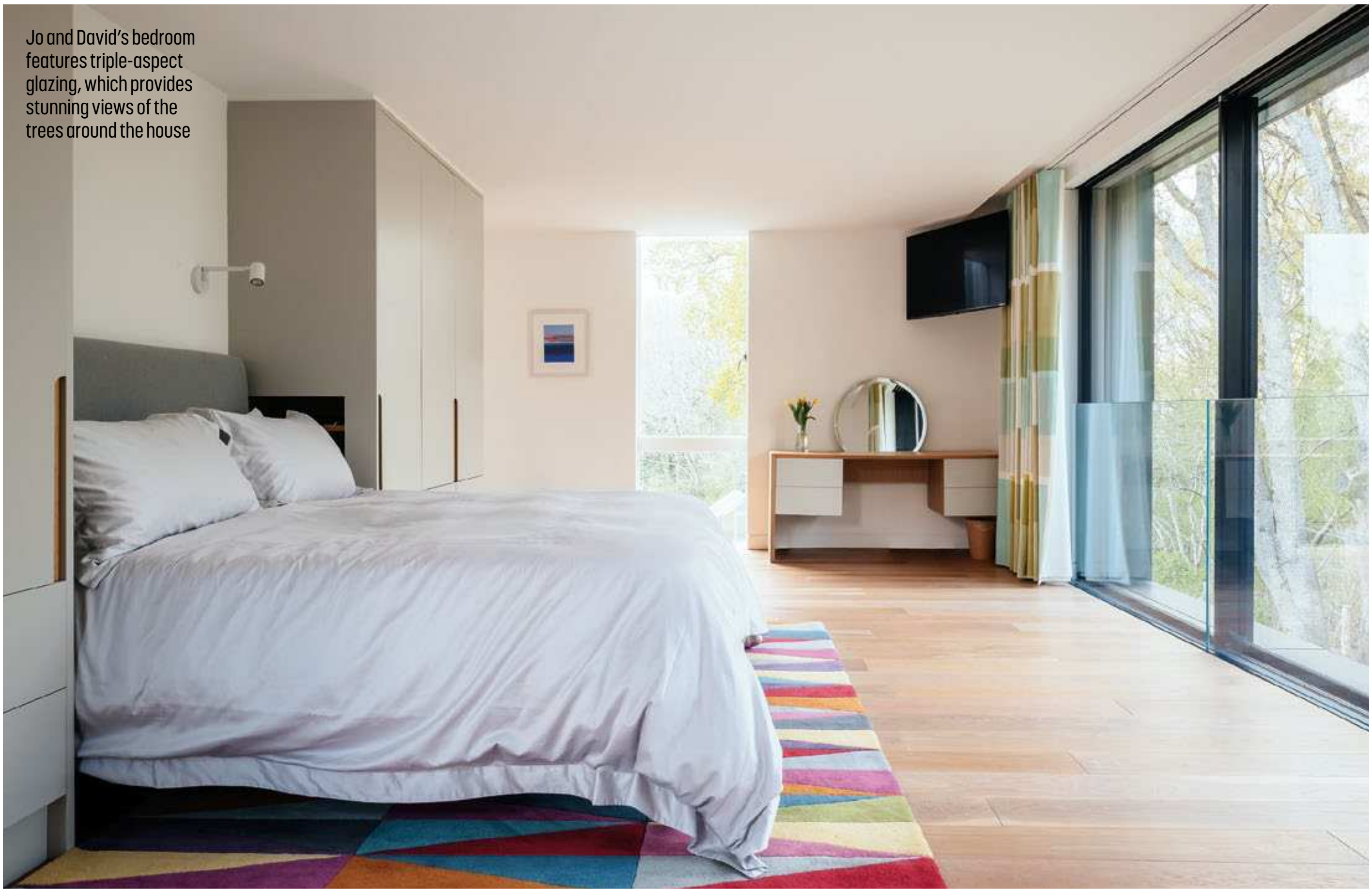
BELOW The bespoke staircase is a steel structure clad in oak. The lift is out of sight behind the stairs

the waters with the planners. The approach worked well, and the scheme received no objections.

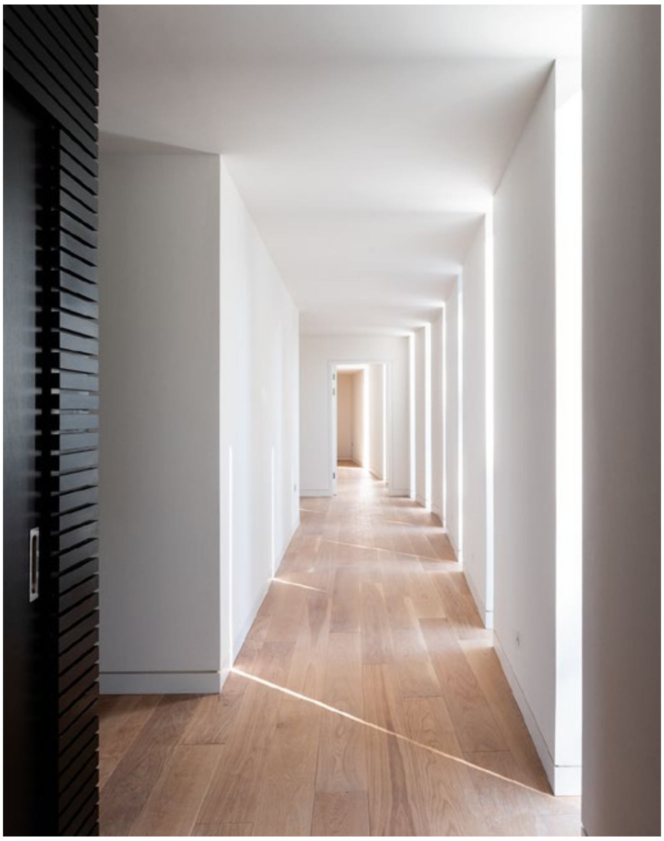
Although the design and planning stages went without a hitch, the same could not be said for the construction. Significant excavation was needed to level the sloping site. 'It had to be flat, plus we were digging down to put in an indoor swimming pool,' says Jo. 'The team had to dig around 3m deep across a 75sqm area. Truckloads of wet clay were taken away – it seemed to take forever.'

Progress took another hit when the couple's contractor went bust in July 2019. Rather than spending months scrambling to track down another firm to take on the half-finished job, Jo took the lead in co-ordinating the rest of the build. 'We kept the same site manager and commercial manager, who effectively became our quantity surveyor,' says Jo. 'Dominic and the team were also extremely helpful. We all pulled together to keep things moving.'

Even the weather seemed to be against them. 'When we needed it to be sunny and dry for the groundworks we got torrential rain and snow. And when we were trying »



Jo and David's bedroom features triple-aspect glazing, which provides stunning views of the trees around the house



LEFT The first-floor landing has a natural palette of materials, including oak flooring and timber panelling. Felt has been fitted behind the timber slats to improve the acoustic performance and reduce echoes

BELOW In the dressing area that opens off the pool, the crisp, white wall-hung sanitaryware and grab rails are from Hewi

to get the garden laid in early 2020 we had one of the hottest springs on record,' says Jo.

Despite the challenges, there were no regrets. 'We were living comfortably in our original home – all the chaos was on the other side of the hedge,' says Jo. From a vantage point on an area of hardstanding overlooking the site, she could see the house being built from above. 'It was where I saw some of the more magical moments, such as when the top floor corridor took shape,' she says.

It's still one of Jo's favourite places. Floor-to-ceiling windows run along one side, framing some of the best views. 'It's quite deliberate that we've not hung any art there,' says Jo. 'Shafts of sunlight do the job for us.'

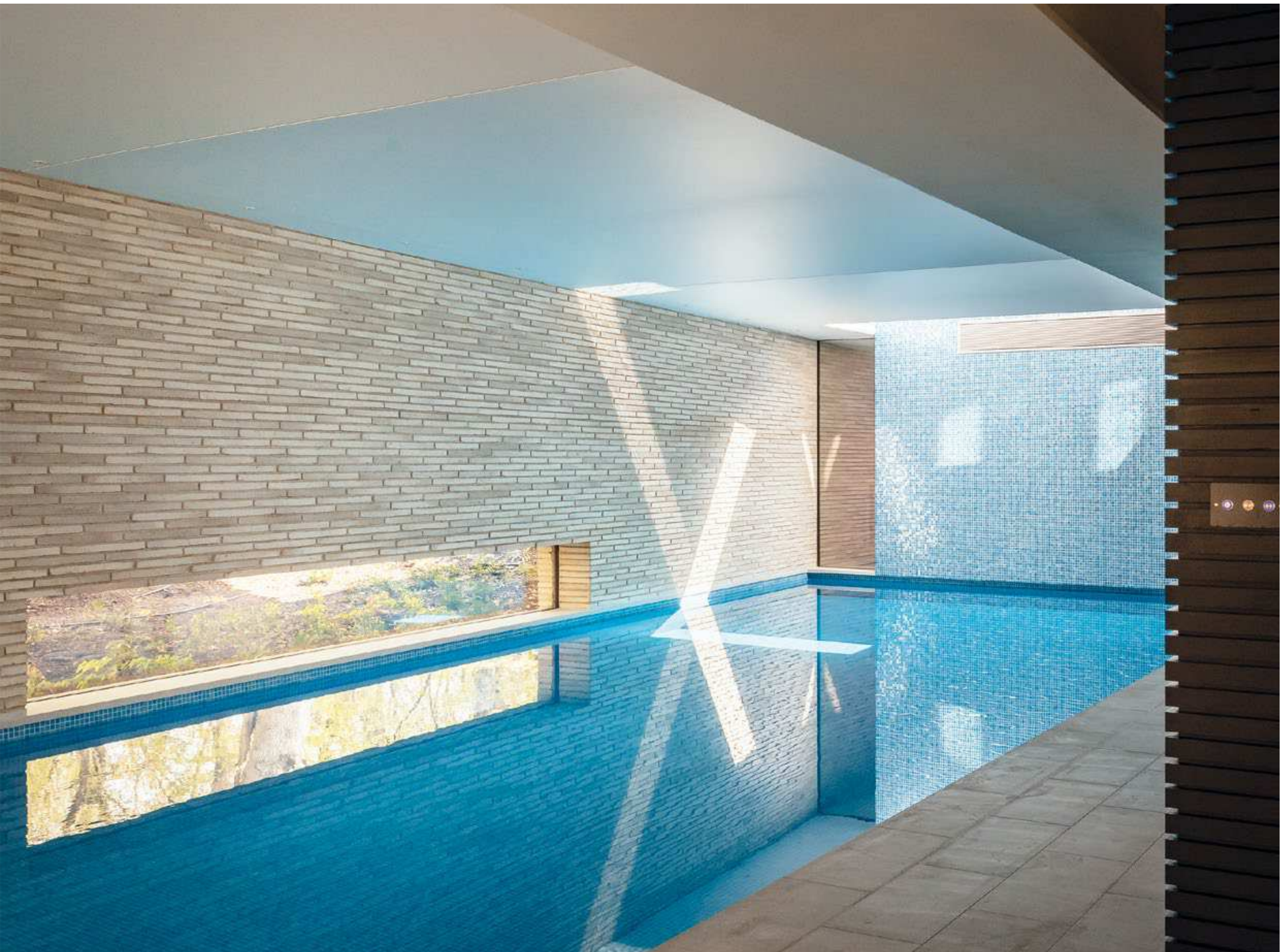
Horizontal timber battening forms a black box at the centre of the house. It borders the kitchen-diner and the stairs, continuing down into the swimming pool area. 'It was Dominic's idea, to help relate the house to the plot and the timber cladding on the outside,' she says. 'It's this detailing that makes the house special.'

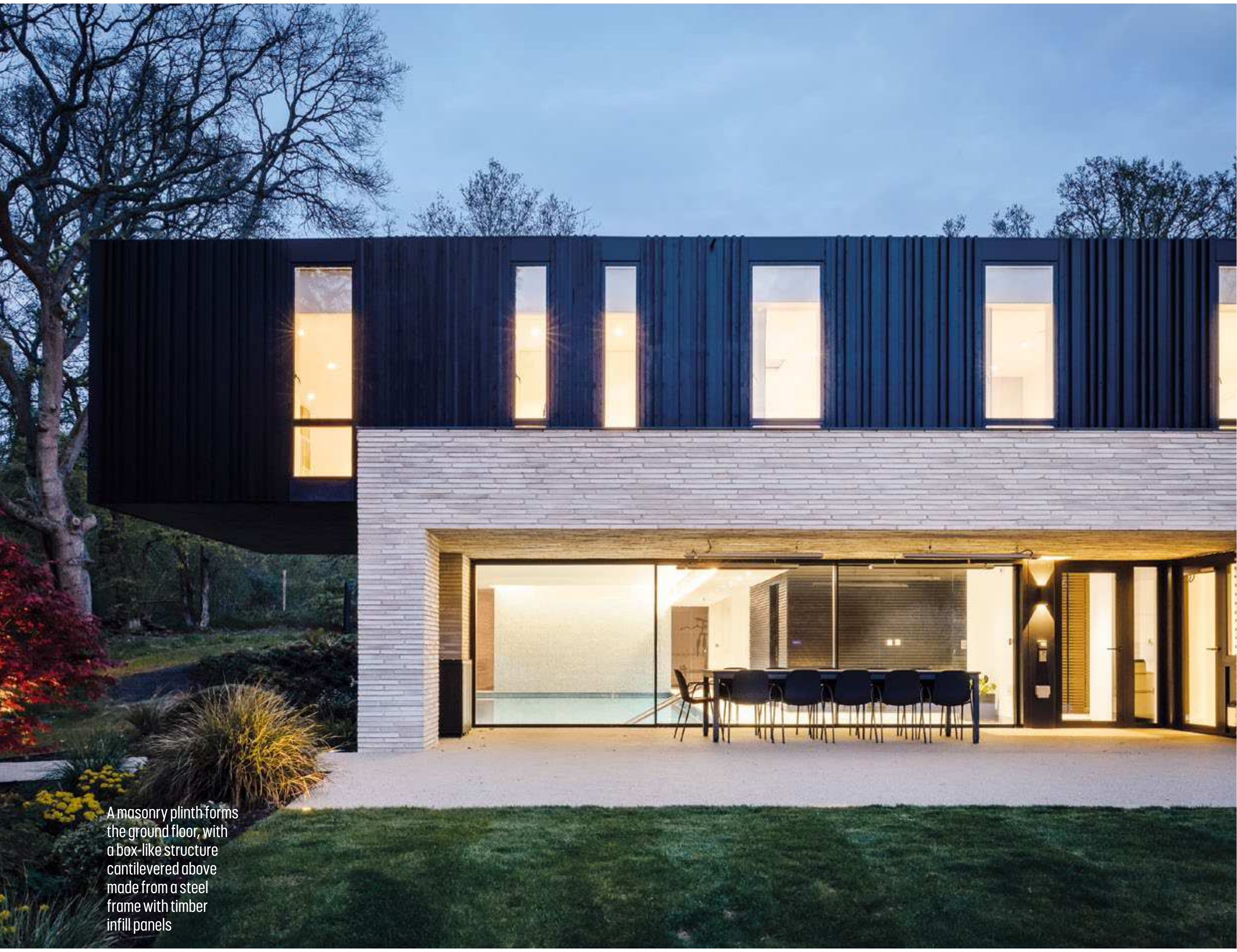
Living in a house tailored to her needs has been transformative for Jo. Level thresholds, a lift and bespoke joinery make an enormous difference to the way that she's able to interact with the space. 'It's a simple thing, but having a dining table with inset legs that don't get in Jo's way makes a big difference,' says Dominic. 'The two kitchen sinks are at the right height and the washing machine and tumble dryer are elevated so Jo can use them easily.' There's a separate guest suite, which could be used by a live-in carer in the future.

> 'We were living in our original home – all the chaos was on the other side of the hedge'

It's not just Jo who has benefitted from the thoughtful design. 'David used to worry about leaving me on my own for too long, but everything is so much easier in this house,' says Jo. 'When I became disabled, my family's existence was turned upside down. Getting back to normal is the biggest prize I could have asked for.' GD

BELOW A low-level strip window and rooflights at the far end create patterns on the surface of the pool





A masonry plinth forms the ground floor, with a box-like structure cantilevered above made from a steel frame with timber infill panels

SUPPLIERS

PROJECT TEAM

Architect Ayre Chamberlain Gaunt (acgarchitects.co.uk)
Structural engineer Eckersley O'Callaghan (eocengineers.com)
Sustainability and MEP Mesh (mesh-energy.com)

STRUCTURE

Steel works Clarke Construction Essex (ccel.org.uk)
Groundworks MTD Formwork (mtdformwork.co.uk)
Brickwork Randers Tegl (randerstegl.com), Taylor Maxwell (taylormaxwell.co.uk), Queens Park Brickwork (01202 303322)
Swimming pool Pools by Design (poolsbydesign.co.uk)
Ground-source heat pump WDS Green Energy (wdsgreenenergy.co.uk)
Solar PV panels Spirit Energy (spiritenergy.co.uk)
Plastering, tiling and painting Georgian Complete Finishings (gcfinishings.co.uk)
Plumbing Tugwell Heating (tugwellheating.co.uk)
Electrics TMS Electrical Contractors (tmselectrical.com)
Windows IQ Glass (iqglassuk.com)
Garden design and build Catherine MacDonald and Landform Consultants (landformconsultants.co.uk)
Driveway LA Kattenhorn & Partners (kattenhornsurfacing.co.uk)
Garage doors Deuren (deuren.co.uk)
Door automation Dormakaba (dormakabagroup.com)

FIXTURES AND FITTINGS

Kitchen The Myers Touch (themyerstouch.co.uk)
Accessible kitchen design Adam Thomas Consultancy (adamthomasconsultancy.com)
Bathrooms Motionspot (motionspot.co.uk)
Sanitaryware Hewi (hewi.com)
Lift Aritco (aritco.com)
Lift installation Platinum Lifts (platinumlifts.co.uk)
Stoves Focus Stoves (focusstoves.co.uk)
Tiles Minoli (minoli.co.uk)

FURNITURE AND ACCESSORIES

Living room rug Helen Yardley (helenyardley.com)

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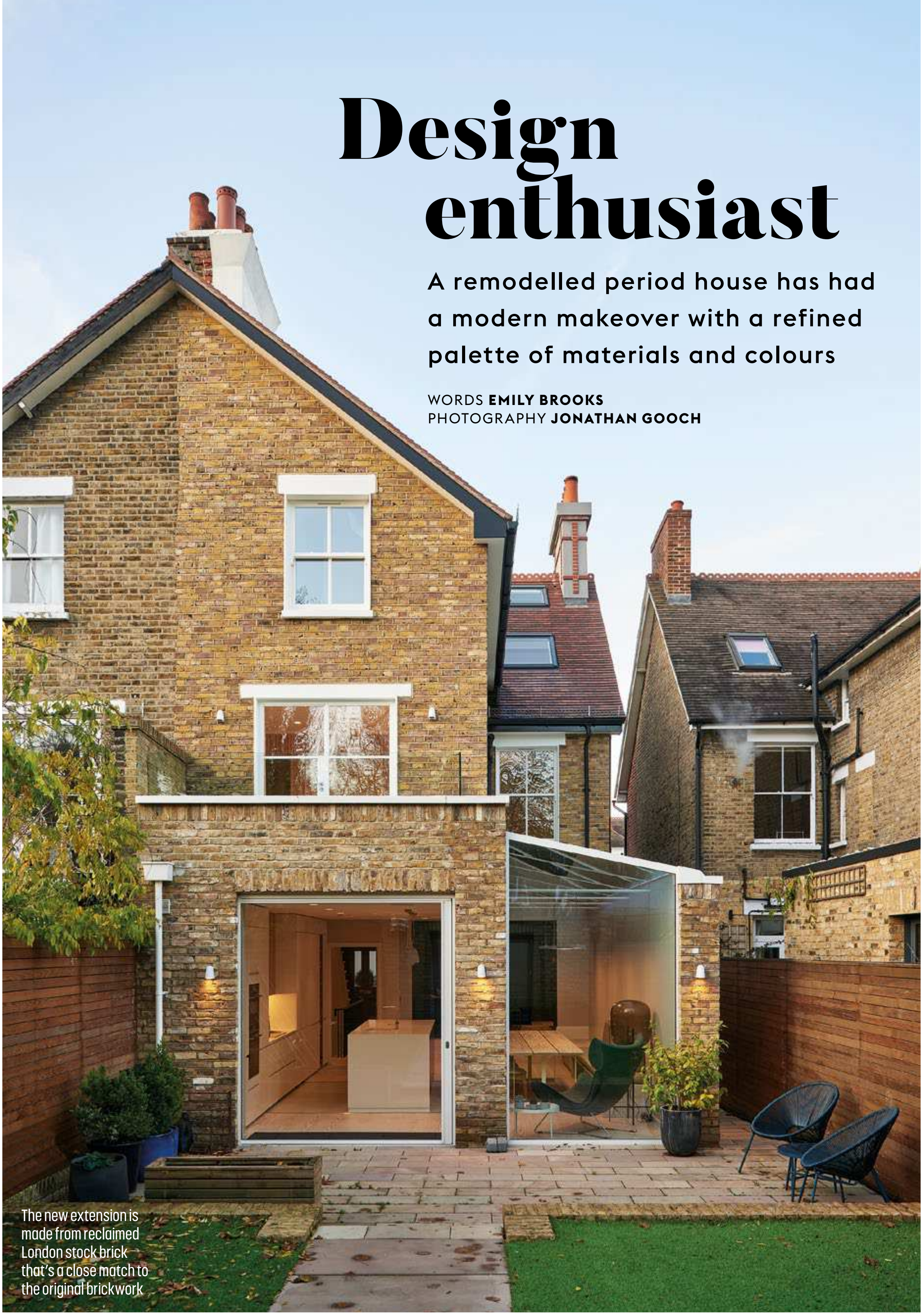


Design enthusiast

A remodelled period house has had a modern makeover with a refined palette of materials and colours

WORDS **EMILY BROOKS**
PHOTOGRAPHY **JONATHAN GOOCH**

The new extension is made from reclaimed London stock brick that's a close match to the original brickwork

IN BRIEF

LOCATION Camberwell, south London
TYPE OF PROPERTY Victorian semi-detached house
BEDROOMS 4
PROJECT STARTED June 2019
PROJECT FINISHED December 2020
SIZE 230sqm
BUILD COST £708,000

Amanda Cooper's passion for design is clear in the remodelled Victorian home in Camberwell, south London, she shares with her sons Sam, eight, and Charlie, six, plus Billy the family dog. 'If I hadn't become a lawyer I would probably have been an architect,' she says. 'I really enjoy the process of thinking about how spaces work.'

The family moved in six years ago to ease Amanda's commute into the city, where she works in the finance industry. With its high ceilings, kitchen extension, big garden and plentiful space, the property seemed ideal. But Amanda gradually began to spot problems, and called on the help of an architect to solve them.

With its high ceilings, kitchen extension, big garden and plentiful space, the property seemed ideal

The appeal of Dinesen, a Danish brand of timber flooring, led Amanda, 40, to architect Joanna Simpson of Simpson Studio. 'I wanted to use Dinesen's Douglas fir boards in the house and searched on Instagram for architects who had worked with the company, which is how I found Joanna,' Amanda explains. They discovered that they both love natural materials, craftsmanship and Scandinavian design.

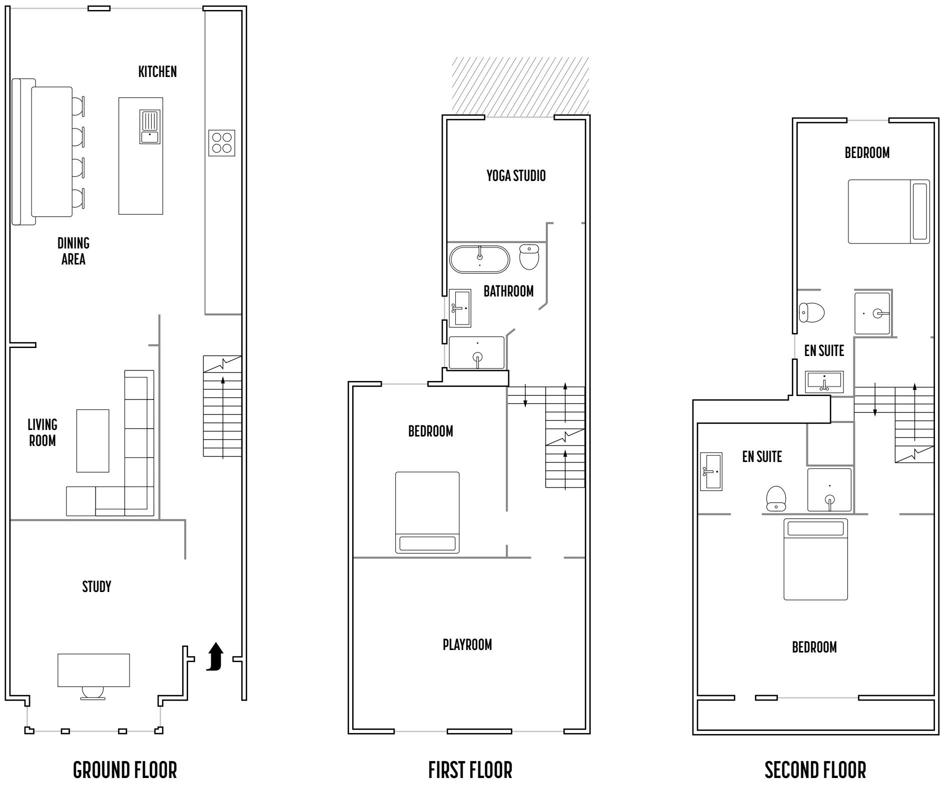
Joanna proposed a top-to-bottom renovation of the house that wouldn't add to the footprint so the work could be done under permitted development. 'There were problems with the electrics and the extension glazing,' she says. 'The windows leaked and didn't let in enough light.' Amanda also disliked a structural pillar in the kitchen-diner because it was a visual and physical obstruction. »

LEFT Both the dining table and the floating bench are made from Douglas fir - as are the floorboards. Amanda plans to turn the garden building into a home cinema

Leading off the kitchen-diner, this cosy living area is painted in Down Pipe by Farrow & Ball

LEFT Non-structural steel tubes allow for pendant lights to be hung over the dining table, with the electric cables hidden inside

FLOOR PLANS


KITCHEN
DINING AREA
LIVING ROOM
STUDY
GROUND FLOOR
YOGA STUDIO
BATHROOM
BEDROOM
PLAYROOM
FIRST FLOOR
BEDROOM
EN SUITE
EN SUITE
BEDROOM
SECOND FLOOR

As well as rebuilding the extension to make it brighter and improve its connection to the garden, Joanna's plans included adding glazed doors between the hallway and the front room to bring in more light, and turning it into a study. 'Though I am mainly office-based, I often bring my work home with me, so I needed somewhere quiet,' says Amanda. 'The new study worked especially well during lockdown.'

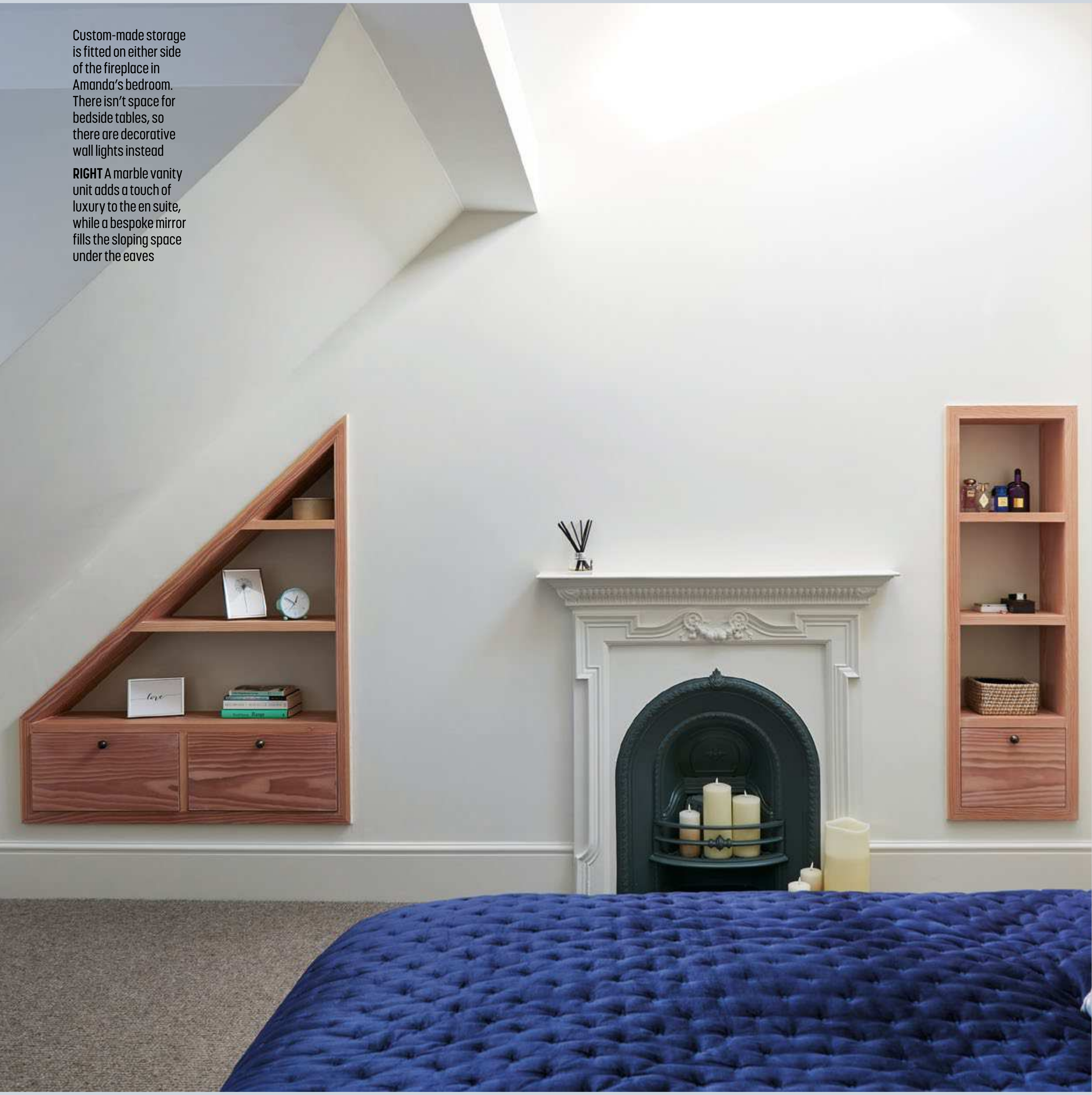
A Victorian staircase was replaced with a bespoke design, and new timber floors were fitted throughout the ground and first floor, as well as on the stairs. The timber contrasts with the smooth concrete floor area in the kitchen and the soft carpet in Amanda's attic bedroom. 'The brief for the entire scheme was clean-lined, with a pale colour palette and a Scandinavian look,' says Joanna.

The kitchen cabinets were one of the few things that Amanda wanted to keep. They were taken out, put into storage and refitted once the extension had been rebuilt. The petrol-blue units inspired the colour schemes in several rooms, including the family bathroom.

The project threw up some unexpected challenges as it progressed. The extension lacked proper foundations, which had to be redone. Later on, a dispute arose with the main contractor over the quality of the workmanship »

LEFT The original Victorian staircase blocked the sightlines through the house, but its replacement offers views from the front door to the garden. The glazed doors lead to Amanda's new study

ABOVE Inside the study, the Victorian fireplace is painted in Railings by Farrow & Ball and matched with a new honed-slate hearth. The bespoke bookcases are made of English ash with blackened steel



Custom-made storage is fitted on either side of the fireplace in Amanda's bedroom. There isn't space for bedside tables, so there are decorative wall lights instead

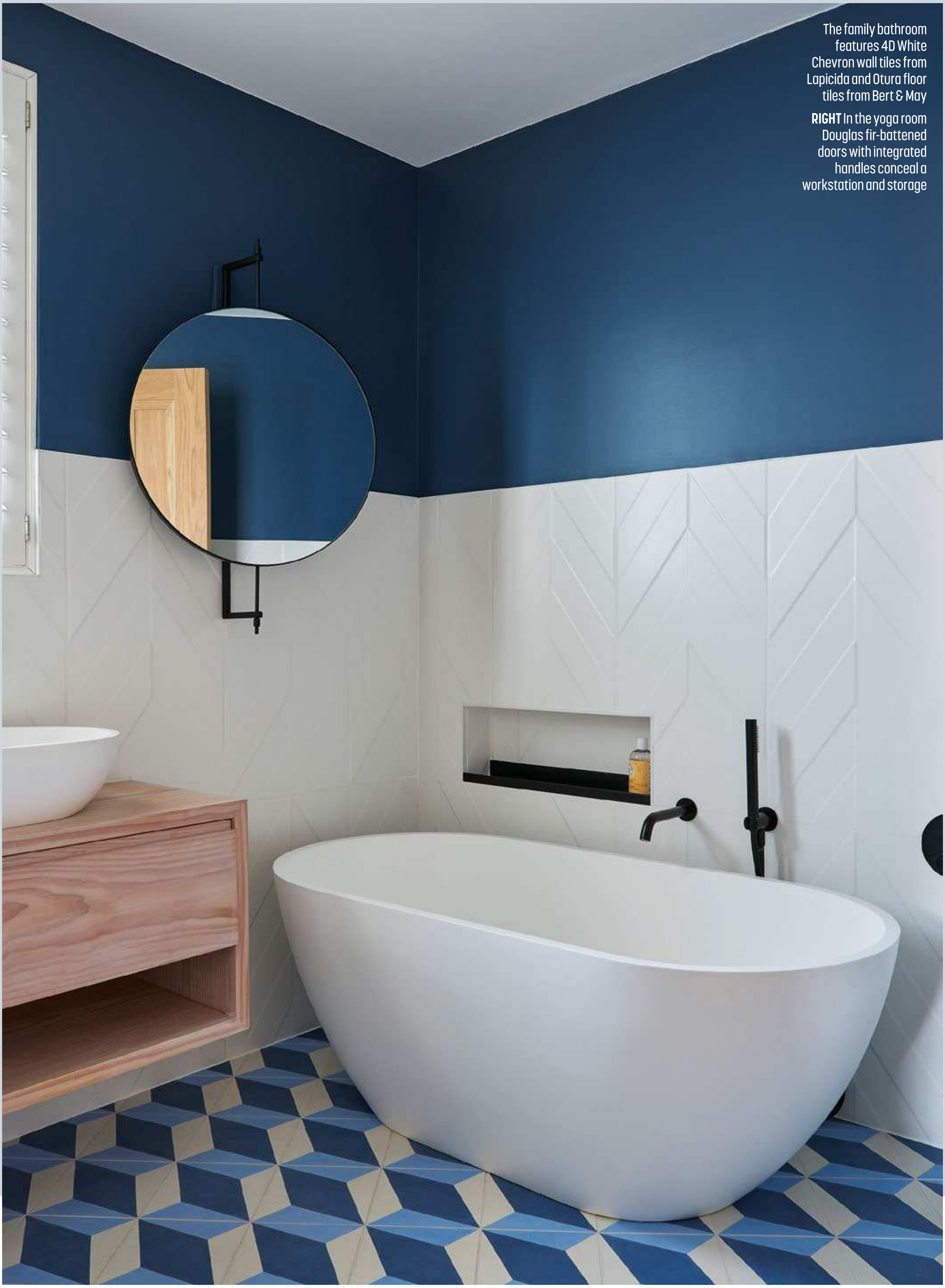
RIGHT A marble vanity unit adds a touch of luxury to the en suite, while a bespoke mirror fills the sloping space under the eaves

and that the family had to move back into the house from a local rental while it was still very much a building site, despite the assurances that the work would be finished. After letting the contractor go, Amanda was presented with a bill for more than £200,000 – which she refused to pay. The dispute was resolved through an independent adjudication process. As a result, and much to Amanda's relief, the bill was reduced to £10,000.

Highlights of the completed renovation include a first-floor yoga room that leads to a new roof terrace, and Amanda's bedroom on the top floor, which has a marble-clad en-suite bathroom with a ceiling that is open to the eaves.

Bespoke furniture helps to bring the colour and materials palette together. A combination of blackened steel and ash can be found in Amanda's study and on her bedroom dressing table, while a bench in the hall is topped with the same type of marble as the coffee tables in the living room and study.

Amanda's enthusiasm hasn't been dampened by the stresses of the renovation, and she hopes to take on a self-build project in the future. 'The kitchen has a completely different outlook and helps the garden seem like an extension of the house,' she explains. 'Best of all, I feel my creative side has been allowed to flourish.' GD



The family bathroom features 4D White Chevron wall tiles from Lapicida and Otura floor tiles from Bert & May

RIGHT In the yoga room Douglas fir-battened doors with integrated handles conceal a workstation and storage

ABOVE The shower enclosure in the family bathroom is covered with four shades of the Design Two Hexagon tile from Grestec

SUPPLIERS

PROJECT TEAM
Architect Simpson Studio (simpson-studio.com)
Structural engineer Elite Designers (elitedesigners.co.uk)

STRUCTURE
Extension glazing Vitrocsa (vitrocsa-uk.com)
Internal glazed door and staircase James Riggall Fine Joinery (jrfinejoinery.com)
Crittall glazed screen Bespoke Glazing Design (bespokeglazingdesign.co.uk)

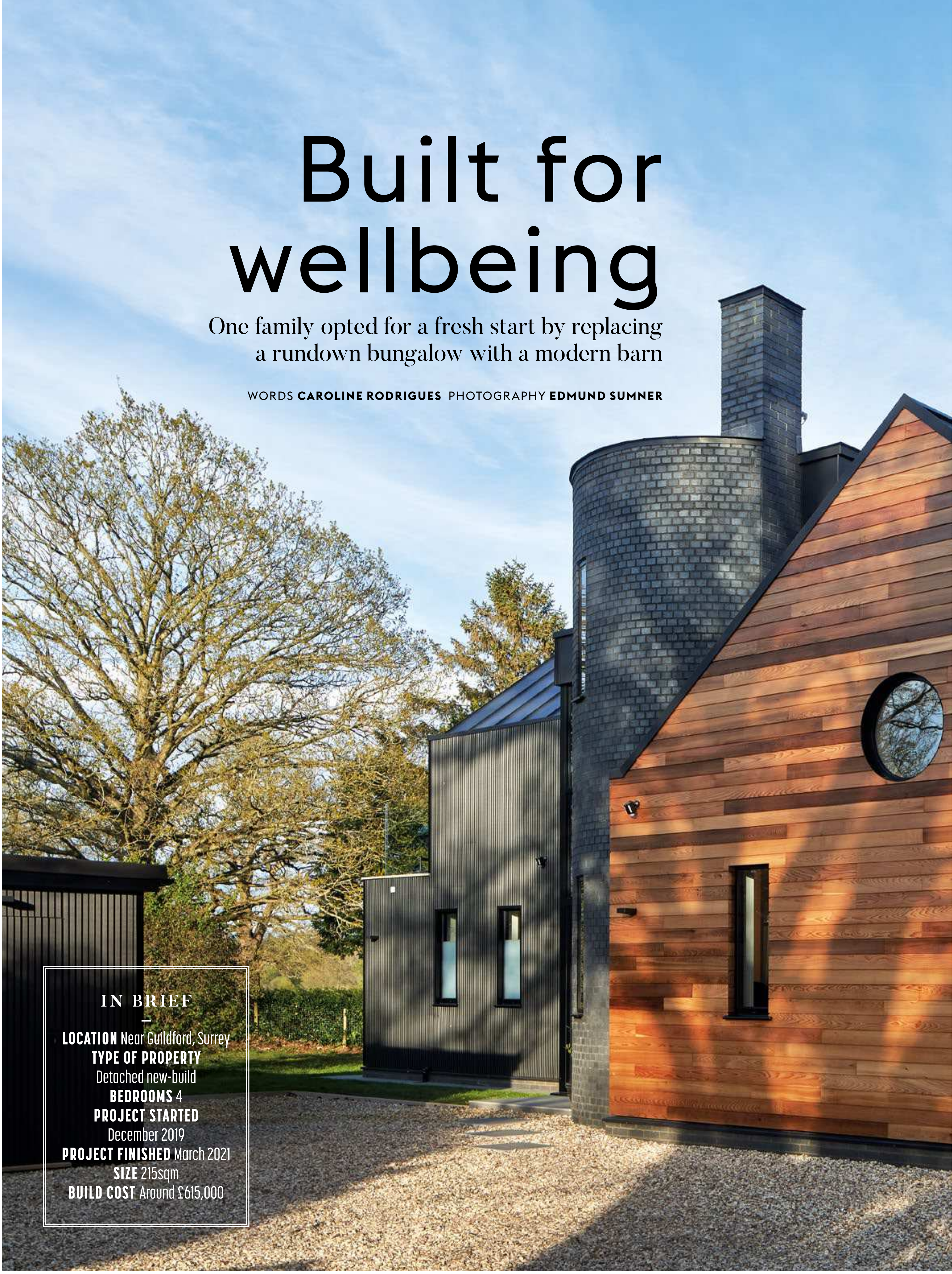
FIXTURES AND FITTINGS
Flooring and staircase treads/risers Dinesen (dinesen.com)
Lighting Anglepoise (anglepoise.com), Astro (astrolighting.com), Brokis (brokis.cz), The Conran Shop (conranshop.co.uk), DCW Editions (dcw-editions.fr), Heal's (heals.com), Isabel Hamm Licht (isabel-hamm-licht.de), Mr Resistor (mr-resistor.co.uk)
Sanitaryware Aston Matthews (aston matthews.co.uk), Lusso (lussostone.com)
Bathroom brassware Vola (en.vola.com), The Watermark Collection (thewatermarkcollection.com), West One Bathrooms (westonebathrooms.com)
Tiles Bert & May (bertandmay.com), Grestec (grestec.co.uk), Lapicida (lapicida.com)
Paint Farrow & Ball (farrow-ball.com)

FURNITURE AND ACCESSORIES
Desk, study bookcases, dressing table, hallway console, living room and study coffee tables Simpson Studio
Dining chairs Carl Hansen & Son (carlhansen.com)
Study side table Gubi (gubi.com)
Kitchen armchair BoConcept (boconcept.com)
Study armchair Fredericia (fredericia.com)
Mirrors Deknudt Mirrors (deknudtmirrors.com), Kristina Dam Studio (kristinadam.dk)

Built for wellbeing

One family opted for a fresh start by replacing a rundown bungalow with a modern barn

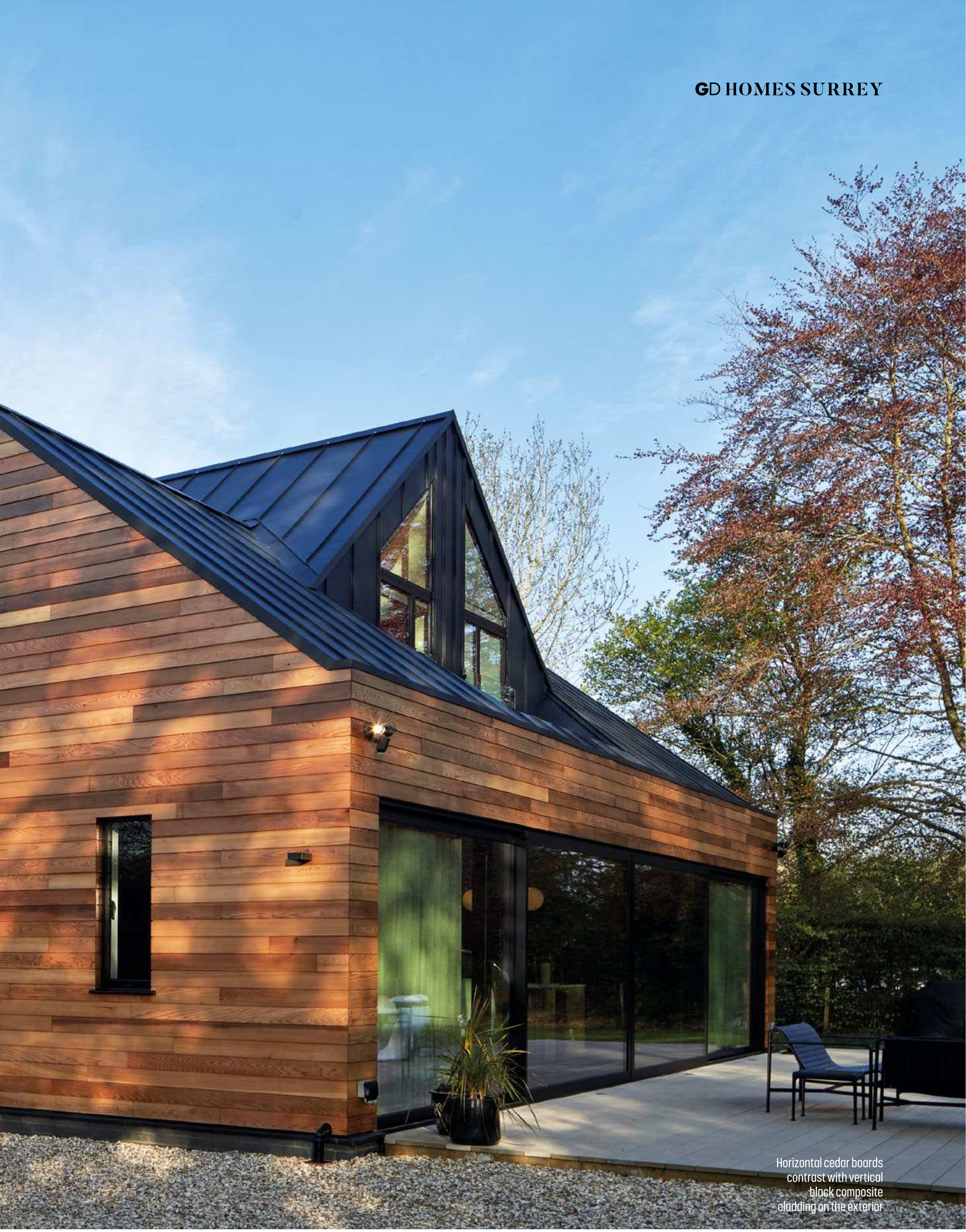
WORDS **CAROLINE RODRIGUES** PHOTOGRAPHY **EDMUND SUMNER**



IN BRIEF

—

LOCATION Near Guildford, Surrey
TYPE OF PROPERTY Detached new-build
BEDROOMS 4
PROJECT STARTED December 2019
PROJECT FINISHED March 2021
SIZE 215sqm
BUILD COST Around £615,000

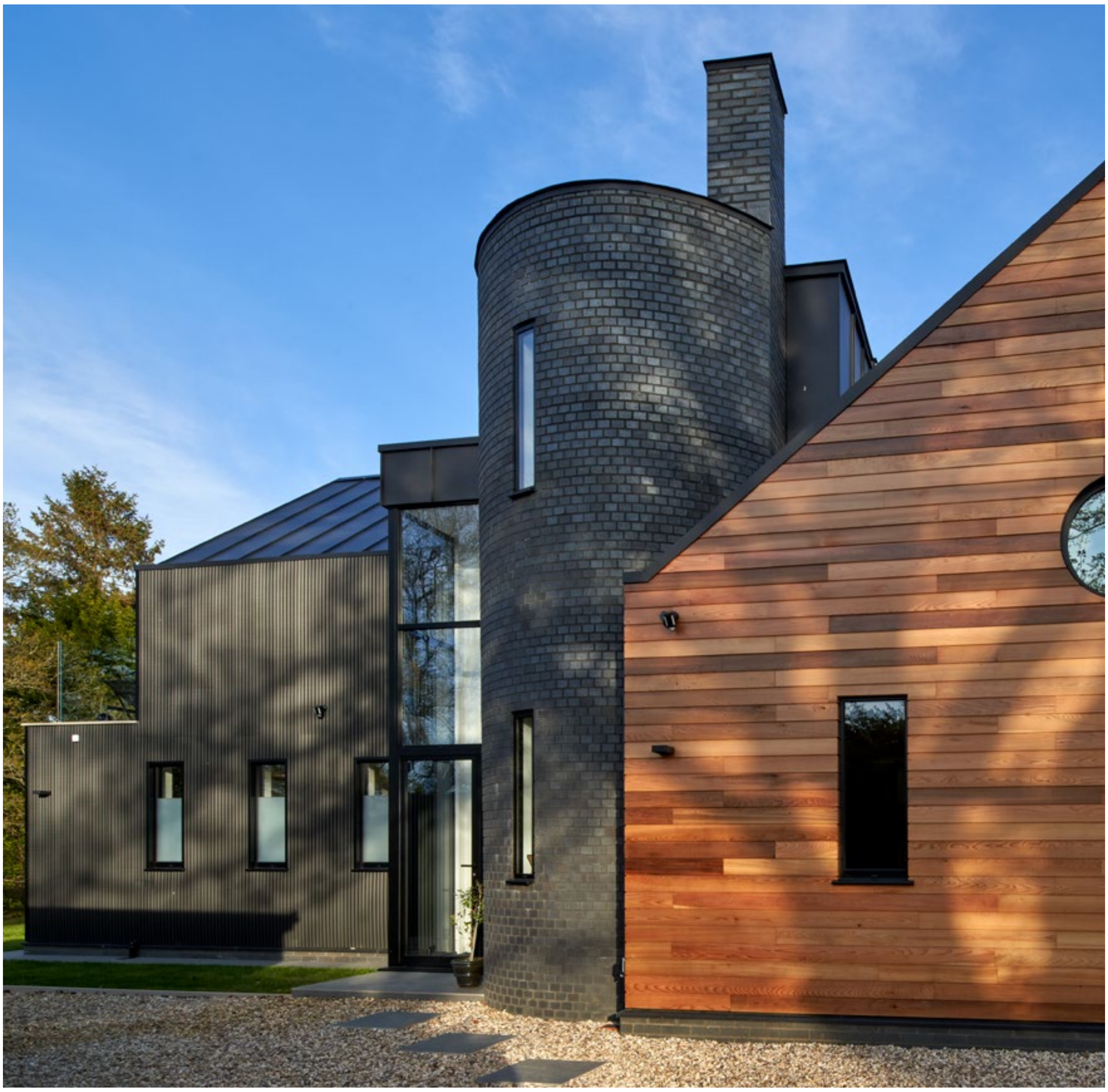


Horizontal cedar boards contrast with vertical black composite cladding on the exterior

After a year of house-hunting it dawned on Emma and Neil Jenkins that building their own home was the only way to get what they wanted. So when they found a 1970s bungalow close to where they lived near Guildford in Surrey, the couple bought it with a view to redeveloping the plot. Their sons Sam, 15, and Jake, 13, were able to stay in the same schools, and the family moved into the bungalow while they lined up an architect and went through the planning process.

Company directors Emma and Neil, both 48, were undeterred by the fact that it had taken the previous owners at least two years and two attempts to get planning permission. 'The bungalow is in a greenbelt and conservation area, with neighbouring Grade II listed buildings, but we felt hopeful because a precedent had already been set by the previous planning application,' says Emma. Though it would have saved time to use the existing plans, the couple decided against it. They didn't like the complexity and potential cost of the proposed building's mock Arts and Crafts style, preferring the idea of something more modern.

After meeting four architects, they eventually selected John Wilson of Foundations Architects. 'We liked John's portfolio and were impressed by the fact that he'd had success with the local planners,' says Emma. John proposed two different designs and, since Neil preferred one and Emma the other, they compromised, resulting in a home that Emma describes as a modern barn. It has a T-shaped footprint, with a double-height kitchen and living area at the top of the T, and a two-storey intersecting part containing a snug and four bedrooms. Planning constraints restricted the height, but John managed to fit three



LEFT The front door is next to the turret, which is made from Staffordshire blue bricks for a contemporary look

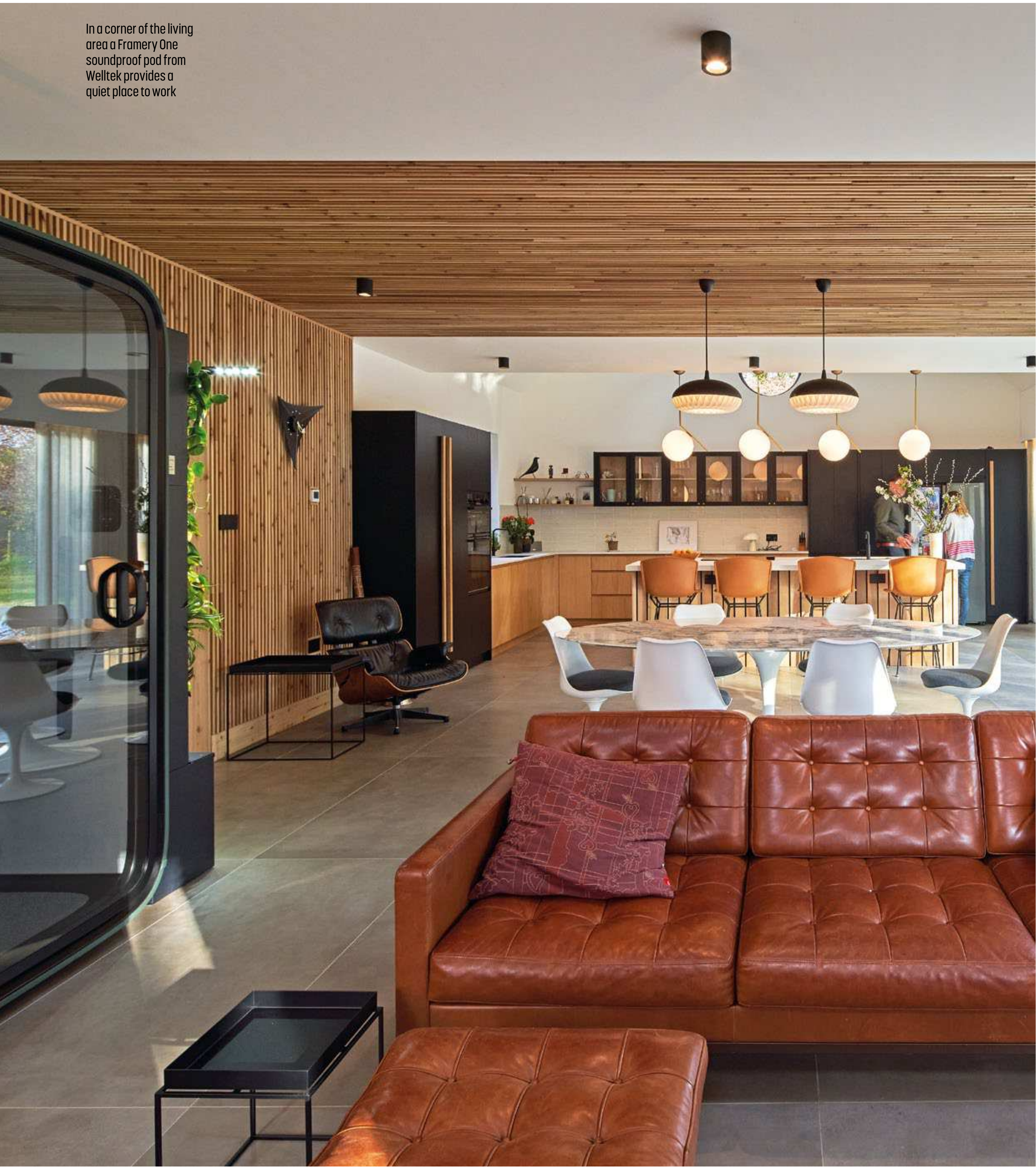
ABOVE From the full-height atrium, one door leads to the study and another to the open-plan living space

When the couple asked if the chimney stack could be curved, John went one step further, designing a turret

of the bedrooms within the apex of the roof as well as including glazed doors on each gable to boost the amount of light that reaches this upper level.

When the couple asked if the chimney stack could be curved, John went one step further, designing a turret containing a study and one of the en-suite bathrooms. He did this without increasing the footprint of the building, something of an achievement given that this was also restricted by the planners. 'The turret is a nod to the traditional round towers found all over Ireland, my homeland,' says John. 'It ties together the living and bedroom wings as well as the double-height hallway.'

Once everything was agreed, the family rented a house across the road and demolition went ahead. The main contractor – who the couple knew from a previous »



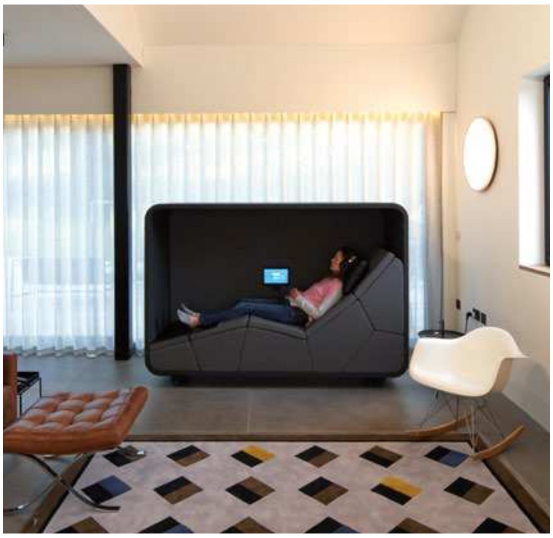
In a corner of the living area a Framery One soundproof pod from Welltek provides a quiet place to work

conversion job – laid the beam-and-block foundations ready for the timber frame. But then the site had to close for lockdown which, combined with Brexit, delayed the project by around five months. Once work restarted, Emma made sure she was on site every day to check progress. 'The doors were on five-month lead times,' she recalls, 'and appliances were very difficult to get hold of, so we had to tweak the kitchen design. But we focused on the end goal of moving in and enjoying the space.'

Two distinct types of cladding wrap the building. Black composite panels, which the couple saw at a design show and admired for their modern, clean lines and eco credentials, contrast with western red cedar boards fitted horizontally and treated to protect the colour. 'If it weathered to a shade of grey, we'd lose the great contrast against the black,' says Emma.

> 'During Covid, appliances were very difficult to get hold of, so we had to tweak the kitchen design'

Having lived in cold period properties, the couple wanted a warm house that didn't cost the earth to heat – either financially or environmentally – so they installed an air-source heat pump to provide hot water and underfloor heating for the ground floor. They also added a mechanical ventilation with heat recovery (MVHR) system, which provides a gentle flow of fresh air and has proved especially useful. 'We live near some fields, and the filters help keep out pollen, dust and allergens, especially around harvest time,' says Emma. 'It's a bonus because there's eczema and hay fever in the family.' »



ABOVE Sheer curtains on the sliding doors shade the living space. Emma sits in a Neuron Activation Pod (NAP) from Welltek, which allows the family to take short, meditative breaks throughout the day

18+

WHAT IS
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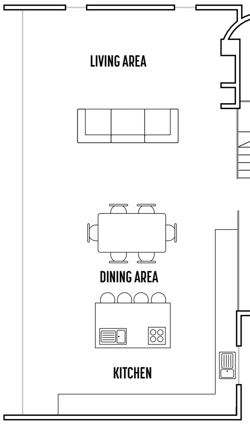
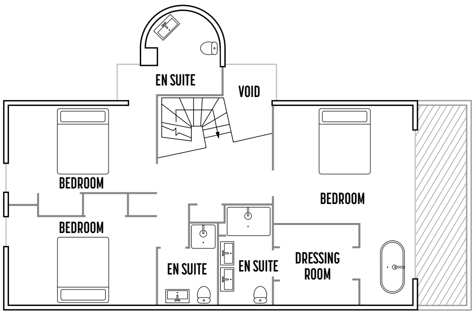
FLOOR PLANS


LIVING AREA
STUDY
LAUNDRY
EN SUITE
WC
BEDROOM
DINING AREA
SNUG
UTILITY
KITCHEN

GROUND FLOOR


EN SUITE
VOID
BEDROOM
BEDROOM
BEDROOM
EN SUITE
EN SUITE
DRESSING ROOM

FIRST FLOOR

There is no need for radiators upstairs as the whole house stays at a steady temperature. 'We have the wiring ready if we ever want to install electric ones, though,' says Emma.

The open-plan living space is enhanced by double-height ceilings in the kitchen and seating areas. In between the two is a dining table with a low, cedar-clad ceiling creating a sense of intimacy and helping with the acoustics. 'It was very labour intensive to produce, but it's one of our favourite features,' says Emma. The separate snug, which opens off the hallway, is also on a cosier scale.

As Emma and Neil are the directors of Welltek, a company that aims to enhance health in the workplace, they were keen to include some specific items in their home. One of these is in the living room, where they enhanced the air filtration system with a large filter designed to remove potentially harmful particles.

Conscious that modern schemes can date quickly, Emma opted for a timeless palette of white, oak and black through most of the house. This, coupled with the expanses of glass, provides the perfect backdrop for the couple's mid-century furniture.

Emma and Neil appreciate the chance that they've had to build a modern family house. 'We feel more connected to one another and we all look forward to coming home,' says Emma. 'I'm not sure the boys will ever want to leave.' GD

LEFT The cedar-clad island includes a hob and an integrated extractor, plus seating so the couple can chat to their guests while they're cooking

ABOVE The dark anthracite composite sink from Blanco and black Abode tap provide a visual link to the aluminium window frames

RIGHT Emma and Neil's north-facing bedroom has its own balcony so they can enjoy the countryside views

Emma chose bespoke automated blackout blinds for the gable end window in the main bedroom

ABOVE A stone resin freestanding bath sits at one end of Emma and Neil's bedroom. The en-suite shower room is reached through the dressing room

SUPPLIERS

PROJECT TEAM

Architect John Wilson at Foundations Architects (foundationsarchitects.co.uk)
Construction FL London (flconstruction.london)

STRUCTURE

Timber frame Vision Development (timber-frame-suppliers.co.uk)
Windows and doors EuroWindows (eurowindows.co.uk)
Cladding Neolife (neolife.fr)

FIXTURES AND FITTINGS

Nibe air-source heat pump Green Square (greensquare.co.uk)
Lutron smart lighting Zenlux Design (zenluxdesign.com)
Kitchen Naked Kitchens (nakedkitchens.com)
Worksurfaces Caesarstone (caesarstone.co.uk)
Sink Blanco (blanco.com)
Bathroom fittings Lusso (lussostone.com), Vitra (vitra.co.uk)
Kitchen taps Abode (abodedesigns.co.uk), Quooker (quooker.co.uk)
Ovens, dishwasher and microwave Bosch (bosch.co.uk)
Fridge-freezer Samsung (samsung.com)
Hob Bora (bora.com)
Large-format floor tiles Marazzi (marazzitile.co.uk)
Engineered oak flooring UK Flooring Direct (ukflooringdirect.co.uk)
Decking Millboard (millboard.co.uk)

FURNITURE AND ACCESSORIES

Furniture, rugs and lighting Couch Potato Company (couchpotatocompany.com)
Wellbeing furniture Welltek (welltek.co)

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Enjoy a fantastic day out at this Yuletide event

Packed with everything you need to prepare for the festive period, the Ideal Home Show Christmas is back at Olympia London from 24-28 November.

This annual shopping event brings you the latest ideas, from decorations and handcrafted gifts to delicious food and drink, as well as furniture and accessories to style your home. Whether you love traditional reds and greens, or something cosier with faux fur and sheepskin throws, you'll be sure to find inspiration in the *Good Homes* magazine Christmas room sets.

If you're hosting the whole family this year, there is a huge range of brands on show to help you create the perfect dining scheme, from handmade pieces to colourful ceramics. And when it comes to gifts, you'll find something for everyone, whether you're looking for jewellery, clothes, crafts or toys. Enjoy this reader offer and have a fantastic day out with your friends and family.

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CHRISTMAS
ideal HOME SHOW at Christmas

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Orchestrate your soundscape

Keep your home peaceful with the latest innovative designs

A new survey of more than 2,000 British adults revealed that 57 per cent of us would like a quieter home. In its National Noise Report, the independent global certification programme Quiet Mark, which is associated with the UK Noise Abatement Society, took a close look at attitudes towards sound in the home and workplace.

For the sake of our wellbeing it makes good sense to choose quiet appliances, as well as building products and materials that help to control and optimise sound levels to create a comfortable and healthy home. Sound from everyday sources such as heating, ventilation, air conditioning and kitchen appliances – as well as other people – has been shown to hinder productivity, focus and memory. Both airborne and impact noises, including vibrating machinery and recreational activities such as football, can create less than ideal conditions.

Quiet Mark's free, searchable database (quietmark.com) enables you to select products that combat noise pollution. This database includes more than 1,000 Quiet Mark-certified products and materials from more than 80 brands. In addition, the new Acoustics Academy platform (acousticsacademy.com) lists a range of verified building materials for walls, floors, doors, windows, ceilings and furniture for every building type.

On the following pages, you'll find a small selection of the Quiet Mark-certified products that can improve the acoustic performance of your home.

PHOTOGRAPHY JONATHAN BANKS

Sound absorption

Products designed to absorb noise help control the levels of sound in a room and reduce reverberation time (RT). An optimum RT reduces the impact of noise and enables you to hear others clearly when they speak. RT is adjusted and balanced by the careful use of absorptive materials.

The Armourcoat Acoustic Plaster System (armourcoat.com), pictured left and above left, optimises the acoustics of interior spaces. It is manufactured in the UK and installed by Armourcoat to ensure the best possible results.

The smooth mineral surface can be applied seamlessly over large flat or curved surfaces such as ceilings and walls. The system has excellent sound absorption, achieving a top Noise Reduction Coefficient.

BuzziSpace produces inspiring acoustic furniture and lighting for open-plan areas in both homes and workplaces. With a commitment to quality design, the company makes tables, chairs, acoustic panels and accessories that create quiet and calm spaces for happy and healthy working.

Keen to learn more about RT and its impact on the acoustics of your space? Measure the RT in your room with the BuzziSpace RT60 App, available for iPhone and iPad via the App Store (free with registration). It demonstrates the acoustic improvements that can be made when introducing sound-absorbing lighting and furniture. (buzzi.space)

Hushed not humid

Many of us spend up to 90 per cent of our time inside, yet indoor air can be up to five times more polluted than outdoor. Indoor air can include dust, viruses, volatile organic compounds (VOCs) and pet dander. Cooking, cleaning with chemicals, and excess humidity, which can lead to mould and bacteria growth, all contribute to poor indoor air quality.

Air purifiers and dehumidifiers offer a solution to cleaner indoor air, but it's important to choose a model that runs at a low noise level. 'Sound from these appliances originates in two areas, the motor and the fan,' says Poppy Szkiler, founder and CEO of Quiet Mark. 'A high-quality product should blend the fan and motor noise, eliminating sounds like chopping or an accompanying annoying pitch.'

The Bora smart dehumidifier by Duux is a stylish, hi-tech solution. Drawing moisture from the air and depositing it in a 4-litre tank, it's perfect for summer months or in spaces prone to damp, such as the basement or loft. With a built-in hygrostat responding to levels of moisture in the air and a carbon filter, the Bora removes excessive humidity and unwanted odours. It can also be operated and monitored via the Duux app. (duux.com)

Purer air, less noise

The MCK55WVM humidifying air purifier from Daikin is a two-in-one appliance that removes excess moisture from the air while cleaning and purifying it.

Its Flash Streamer technology releases ions into the air. These ions attach themselves to the surface of allergen particles such as pollen

Ions attach to the surface of allergens such as pollen and mould, breaking them down by the process of oxidation

and mould, breaking them down by the process of oxidation.

This patented technology has been proven to deactivate airborne bacteria and viruses – including up to 99.98 per cent of the human coronavirus HCoV-229E, according to a 2021 report by the Institut Pasteur de Lille (pasteur-lille.fr/en). The unit also includes a high-efficiency particulate-absorbing (Hepa) filter to trap fine particles of dust.

The appliance draws in air from the front and side of the unit and releases it from the top, covering an area of up to 41sqm. Extracted moisture collects in the 2.7-litre built-in water tank. (daikin.co.uk)

Cool and muted

Liebherr is one of the world's leading manufacturers of refrigerators and freezers. The company was established 60 years ago and is proud to have the EWTdf3553 Vinidor built-in wine cabinet as part of its Quiet Mark-certified range.

The appliance blends in beautifully with any kitchen. As with all Liebherr's fully integrated refrigerators, freezers and wine cabinets, the door can be customised to match surrounding cabinets up to a height of 178cm thanks to an easy installation system.

Up to 80 wine bottles can be stored on the sleek wooden shelves for attractive presentation and clear labelling. The interior is illuminated by LED lighting, which emits less heat than incandescent bulbs and no UV radiation, helping to preserve the quality of the wines.

The engineering on the inside of a Liebherr appliance is every bit as sophisticated as the design on the outside. The EWTdf3553 Vinidor has two temperature zones that can be programmed independently between 5°C and 20°C, ensuring that red and white wines are stored at the optimum level. A safety thermostat prevents the temperature from dropping any lower than 0°C to prevent damage to the wines. Thanks to the company's patented SoftSystem, the door closes gently even when fully loaded. (liebherr.com)

Quieter cooking

For more than 120 years, Miele has been crafting stylish and hi-tech home appliances. Innovation and quality are at the heart of the brand's ethos, as can be seen in its collection of cooker hoods, which are designed to provide a steam and odour-free kitchen while blending seamlessly into the scheme.

The Quiet Mark-certified DA 6698 D Puristic Version 6000 island cooker hood is efficient and quiet. The motor, chimney and canopy are specially insulated for effective soundproofing, and the Eco motor saves up to 70 per cent of energy compared to conventional models.

The hi-tech DA 6698 D Puristic Version 6000 ducted hood has stainless steel filters with a 10-ply construction that efficiently removes grease and can be cleaned in the dishwasher. With Wi-Fi connection, the hood responds automatically to settings on the hob.

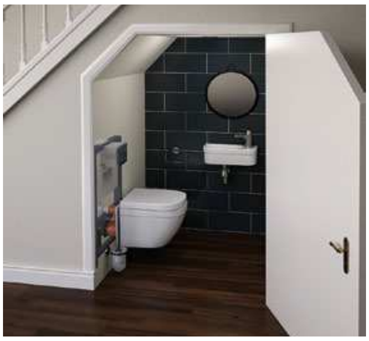
Almost all Miele cooker hoods are made in the company's Arnsberg plant in Germany, where every stage of the manufacturing process involves a certain amount of handcrafting, from shaping the steel to welding and polishing. (miele.co.uk)

Peaceful solutions

There's a skill to designing a small bathroom, and cleverly engineered, compact products help to make the most of every inch of space. Good acoustics have a significant role in creating an oasis of calm and relaxation in even the tiniest bathroom, as well as preventing noise intrusion in adjacent rooms. The last thing anyone wants is a loo with a noisy flush.

Grohe's Rapid SL and SLX installation flush systems for wall-hung loos have achieved Quiet Mark accreditation thanks to Grohe's Whisper technology. Their innovative design has low-noise fittings and includes decoupled pipe supports to prevent sound transfer to the structure of the building when the water is released from the cistern.

Both the Rapid SL, pictured below, and SLX, pictured right and bottom, combine cistern and frame, which can be located within a stud wall as a space-saving solution. (grohe.co.uk)



WORCESTER
BOSCH
BOSCH

Quieter heating

A noisy heating system can be a distraction and, with many of us spending more time working from home, it can become a problematic disruption, especially for those set up at the kitchen table or in a bedroom workstation. Fortunately, the design of Worcester Bosch boilers means they can be fitted in any room, including the kitchen, bathroom or even a bedroom.

Both the Quiet Mark-certified Greenstar 2000 combi boiler and the Greenstar 4000 combi boiler, pictured, run at a lower noise levels than many similar alternatives, and are suitable for installation in small to medium-sized homes.

Both of these Worcester Bosch models are highly energy-efficient, helping homeowners to cut their carbon emissions while saving on their household energy bills. These savings can be increased further if installed with compatible smart heating controls. (worcester-bosch.co.uk)

Boiler Overview
Boiler Temp.
55.5°C
on
once
Pressure OK: 1.6 bar
ok

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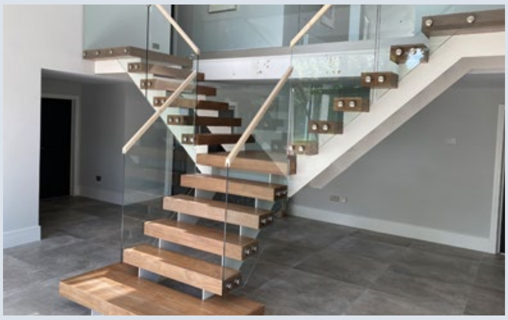

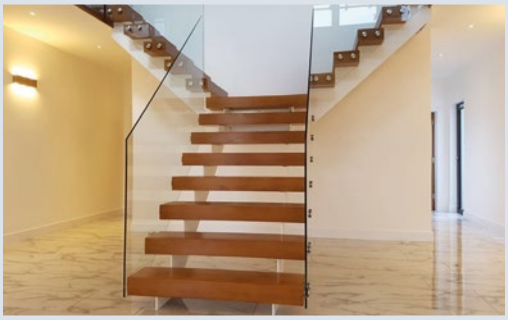

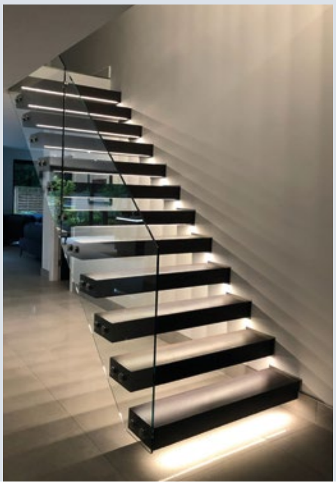

Recently featured on the grand designs show, S&L Engineering prides itself as a company that can provide all aspects of architectural metalwork, including contemporary staircases, glass balustrades, balconies, gates and railings.

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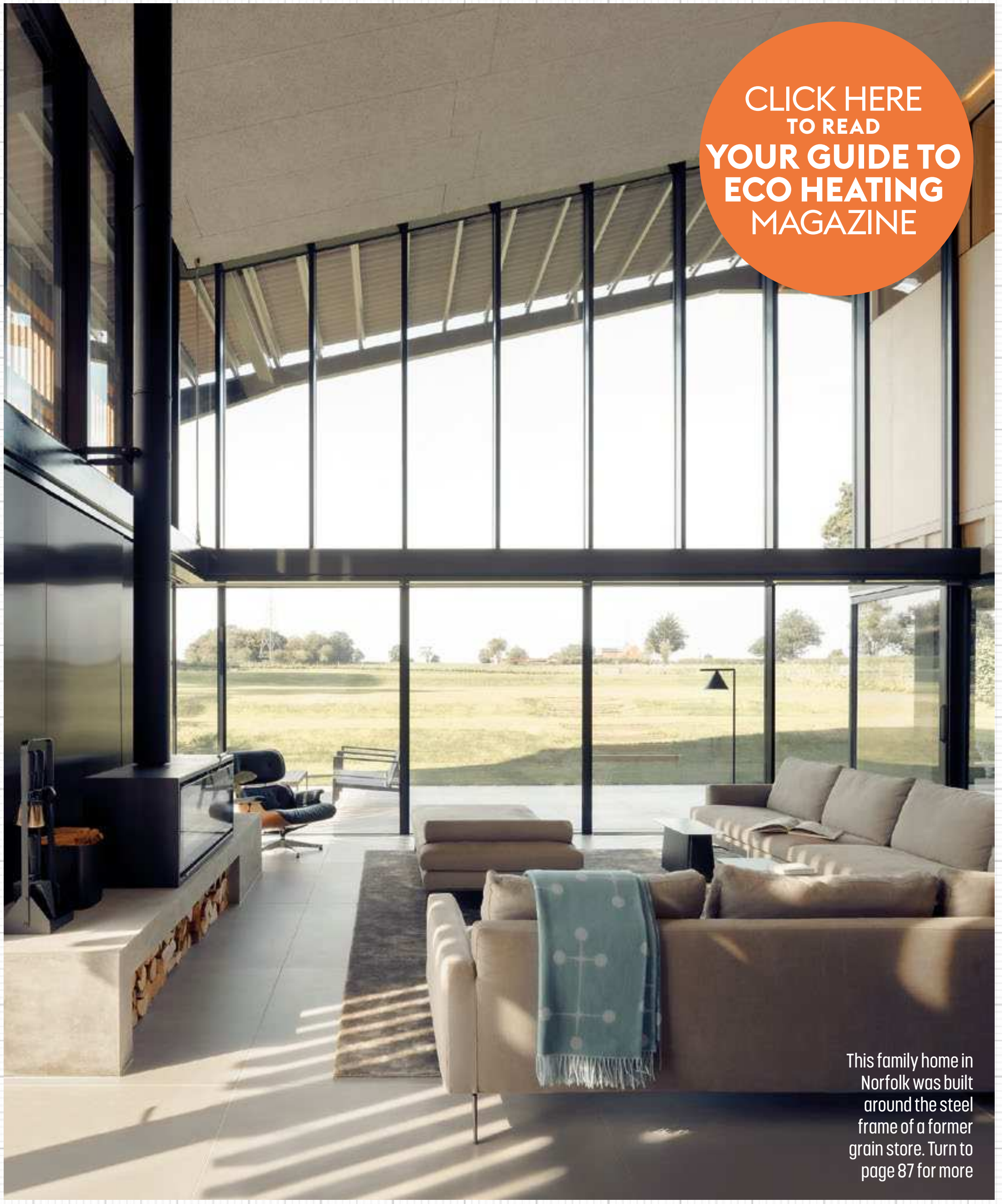
GRANDDESIGNS PROJECTS



CLICK HERE TO READ YOUR GUIDE TO ECO HEATING MAGAZINE

This family home in Norfolk was built around the steel frame of a former grain store. Turn to page 87 for more

PHOTOGRAPHY NICK DEARDEN

How to build with natural materials 81

10 converted agricultural buildings 87

Focus on modular homes 97

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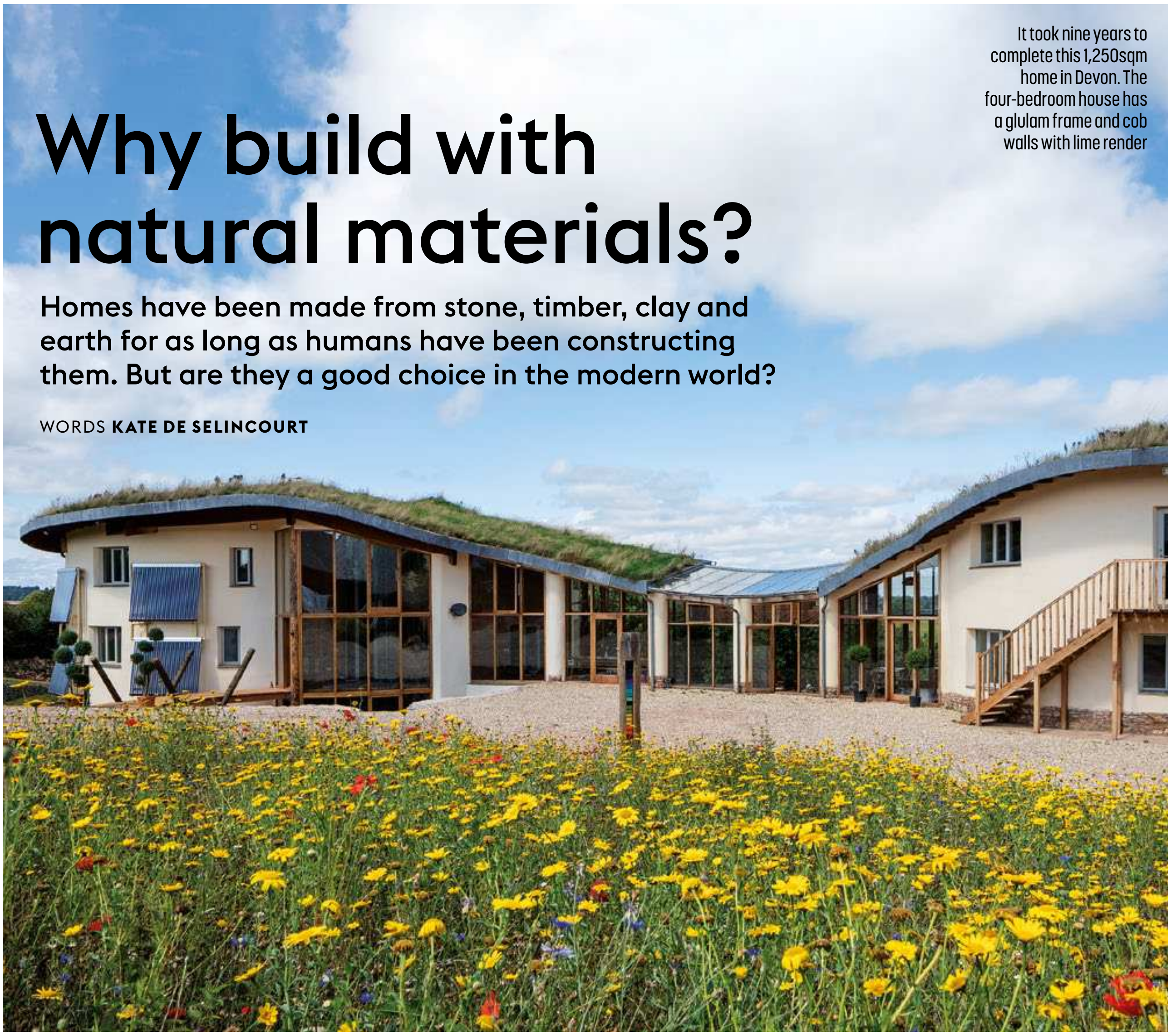
Homes have been made from stone, timber, clay and earth for as long as humans have been constructing them. But are they a good choice in the modern world?

WORDS **KATE DE SELINCOURT**



It took nine years to complete this 1,250sqm home in Devon. The four-bedroom house has a glulam frame and cob walls with lime render

Natural sources can provide almost every component required to build a house. Wood can be turned into boards and beams, including highly engineered glulam (glued laminated timber), plus cladding, flooring and roofing. Straw bales, rammed earth and cob – a mixture of clay, straw and sometimes lime – have all been used for self-builds. Timber processed into fibres is made into insulation, as are hemp, wool and recycled fibres from newspaper, cellulose, jute sacks and even denim. For interior finishes there are raw clay and mineral-based plasters, and mineral paints.

Design flexibility

Often natural materials have an innate beauty, and are characteristic of the local area, such as the limestone found in the Cotswolds and the Scottish larch used in weatherboarding or shingles.

They also have a more appealing appearance than synthetic finishes – which may be an advantage when seeking permission to build. But natural materials don't have to create the country cottage look. They can be used to create a rustic finish or a crisp, contemporary design.

Natural materials have an innate beauty, and are often characteristic of the local area

Health and wellbeing

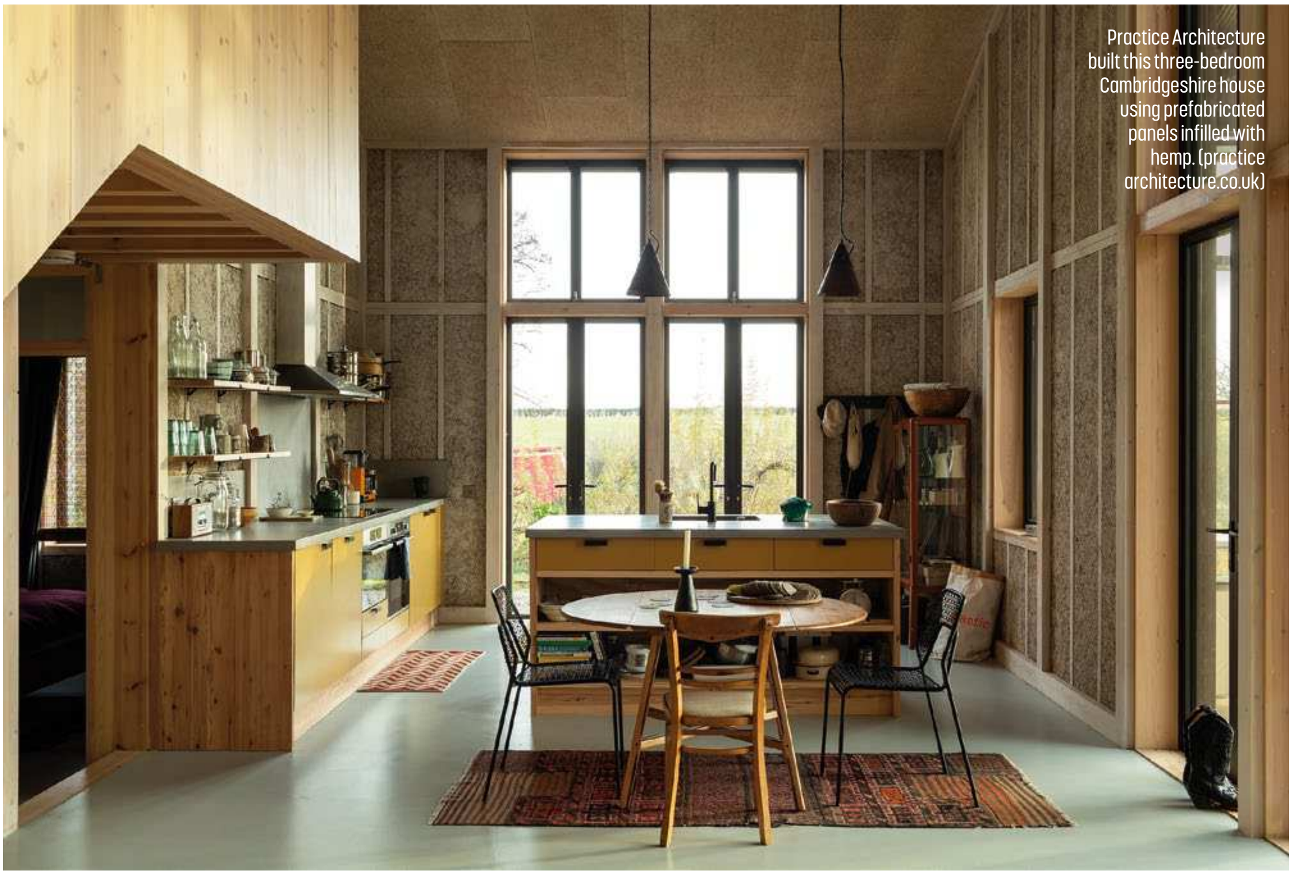
These products tend to have low toxicity. One example is natural fibre insulation, which is usually treated with low-toxicity mineral salts to reduce flammability. Whereas synthetic foams may contain organophosphate flame retardants, which can have an adverse effect on health. Natural finishes and insulation are a rational choice for creating a healthy home – and they are nice to handle too.

Circular economy

As long as they are responsibly sourced and processed, most natural materials have relatively low environmental impact. They do not require the amounts of energy used to create brick, concrete and steel, and they come from readily renewable sources.

Processing any material inevitably involves some energy use. But you can see exactly how much as responsible manufacturers record the details in Environmental Product Declarations (EPDS).

Materials such as timber and stone can be reused – possibly several times. By »



Practice Architecture built this three-bedroom Cambridgeshire house using prefabricated panels infilled with hemp. (practice architecture.co.uk)

contrast, synthetic materials are much harder to reuse. One day you may need to dismantle or replace part or even all of your home – so it will help if it can be taken apart and be reused.

Carpentry skills are widespread, and beautiful homes have been built more or less entirely from timber and wood products

Structure and insulation

The most straightforward and economical natural option for housebuilding is timber. Carpentry skills are widespread, and beautiful homes have been built more or less entirely from timber and wood products, from the structure to the insulation, cladding, even interior finishes.

'Using certified timber from sustainably managed forests is an obvious choice of material for modular and bespoke homes,' says Oliver Rehm, the CEO of Baufritz UK. 'Compared to cement and steel it has many advantages – it is local, renewable, recyclable, lightweight and easy to manufacture as well as being an excellent thermal insulator.'

Your home could also be built from materials such as hemp composites, earth and straw. Other than when it's used for thatch, straw isn't a traditional construction material, but this is starting to change because it is an abundant byproduct, relatively cheap and easy to handle, and the hollow stems offer good insulation. Straw and hemp are also used in prefabricated panels for a more conventional approach.

But if you want to get really hands on with your self-build, you can learn how to work with straw bales on a practical course such as those offered at the School of Natural Building (schoolofnatural building.co.uk).

Natural insulation tends to be heavier, and to perform properly it may need to be thicker than synthetic versions. This is not necessarily a disadvantage – its weight reduces temperature variations and creates a quieter building.

Avoiding plastics

Favouring natural materials usually means using less plastic, though it can make sense to choose synthetic products for a few specific jobs, such as where there is a risk of moisture.

Some plastics are really worth avoiding. One of the most problematic is PVC, considered by many environmental groups to be one of the most toxic in its manufacture, use and disposal. PVC and urethane foams are also particularly dangerous in the event of fire.

Consider timber, ceramic, bamboo or linoleum for flooring instead. PVC-free windows cost more, but should last longer. PVC-free wiring is also available.

Getting help

Specialist timber frame building suppliers will design, and sometimes erect, a frame. There are also modular timber construction systems, which are often insulated with natural materials such as cellulose.

Manufacturers and suppliers of natural materials are generally very enthusiastic about helping their customers get good results, and some »

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Architecture practice Studio Octopi used lime render, Bath stone and timber to construct Orchard House in Wiltshire. (octopi.co.uk)

offer moisture analysis, even on-site training. Natural materials don't respond well to getting soggy, so ensure your designer is confident in carrying out a moisture assessment to avoid unwanted build-up in the fabric.

Despite their generally low toxicity, natural products are not an alternative to having proper ventilation. It's needed in all buildings to ensure a healthy indoor environment by removing moisture, carbon dioxide and cooking smells, and replenishing the fresh air.

Financial considerations

Although they are very different, timber and masonry construction may not differ much in price – the design and size of the building is likely to matter more. Some natural materials and finishes are more expensive than their synthetic equivalents such as PVC replacements. They may also need more skill and labour to install, and sometimes require specialist preparation and fixings.

Less common options put greater restrictions on what can be built, who can build it – because they need specialist skills – how long it will take and how it will look, so research carefully before making your final choices.

Sourcing and labelling

Check the origins of your materials. Ensure timber comes from well-managed forests, and that stone is not produced by labourers working in poor conditions. In a bid to avoid greenwash, some labelling schemes can be relied on to give objective information. EPDs have legal definitions for the information provided, and the European Natureplus labelling scheme sets targets for environmental and health impact, as well as energy and resource use (natureplus.org).

Choose to reuse

Reclaimed and salvage materials probably have the lowest impact of all. Search reclamation yards for boards and slates, but it's more economical to buy second-hand brick or building stone direct from a local demolition site. Even so, the labour involved in dismantling, sorting and transporting them means using reclaimed is not likely to save you money.

Natural materials are no bar to a low-energy home – many Passivhaus builds are almost entirely nature-based. Going natural can ease the strain you put on the planet, at the same time as rewarding you with an attractive and healthy home. GD

PRACTICAL POINTERS

Do your research, says **Henry Duncan**, design manager at **Greenheart Sustainable Construction** (greenheartuk.com)

- For best results consider your materials at the concept stage, as the qualities and limitations should inform the design process. Designing your house then choosing what you build it with afterwards may compromise your aims. If you want an all-timber structure, this will affect how you arrange the windows, doors and partition walls to ensure that no steel is needed.
- Choose a designer with a practical understanding of how to build with natural materials, and a builder who understands both the technical and aesthetic requirements. It's even better if they work together regularly.
- Timber and engineered wood products fit well into the usual commercial timescales, and it's far more common to find designers and builders able to use them confidently.
- Engineered wood waste products, panels, boards and composite beams are the ultimate natural, resource-efficient material. They offer consistent sizes and are also mostly recyclable or even reusable at end of life. Their provenance, performance and sustainability can be easily quantified and documented, so building control approval, mortgages and warranties are more readily available.
- For unusual options such as cob or rammed earth you must carry out thorough research beforehand. The time and skill needed to build with these materials means the project won't be cheap or, if you do it yourself, quick.

PHOTOGRAPHY MARK BOLTON, OSKAR PROCTOR

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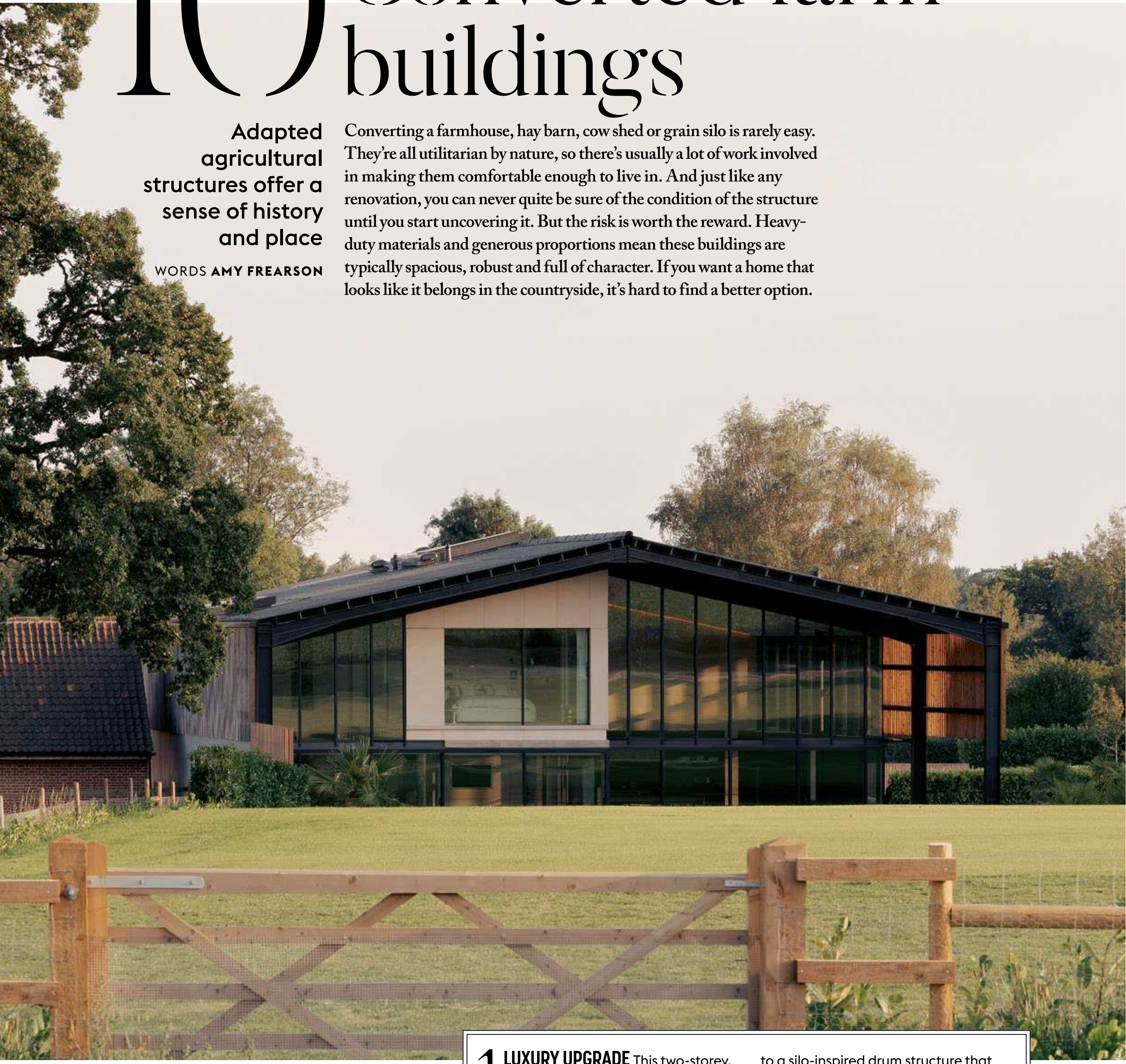
10 Converted farm buildings

Adapted agricultural structures offer a sense of history and place

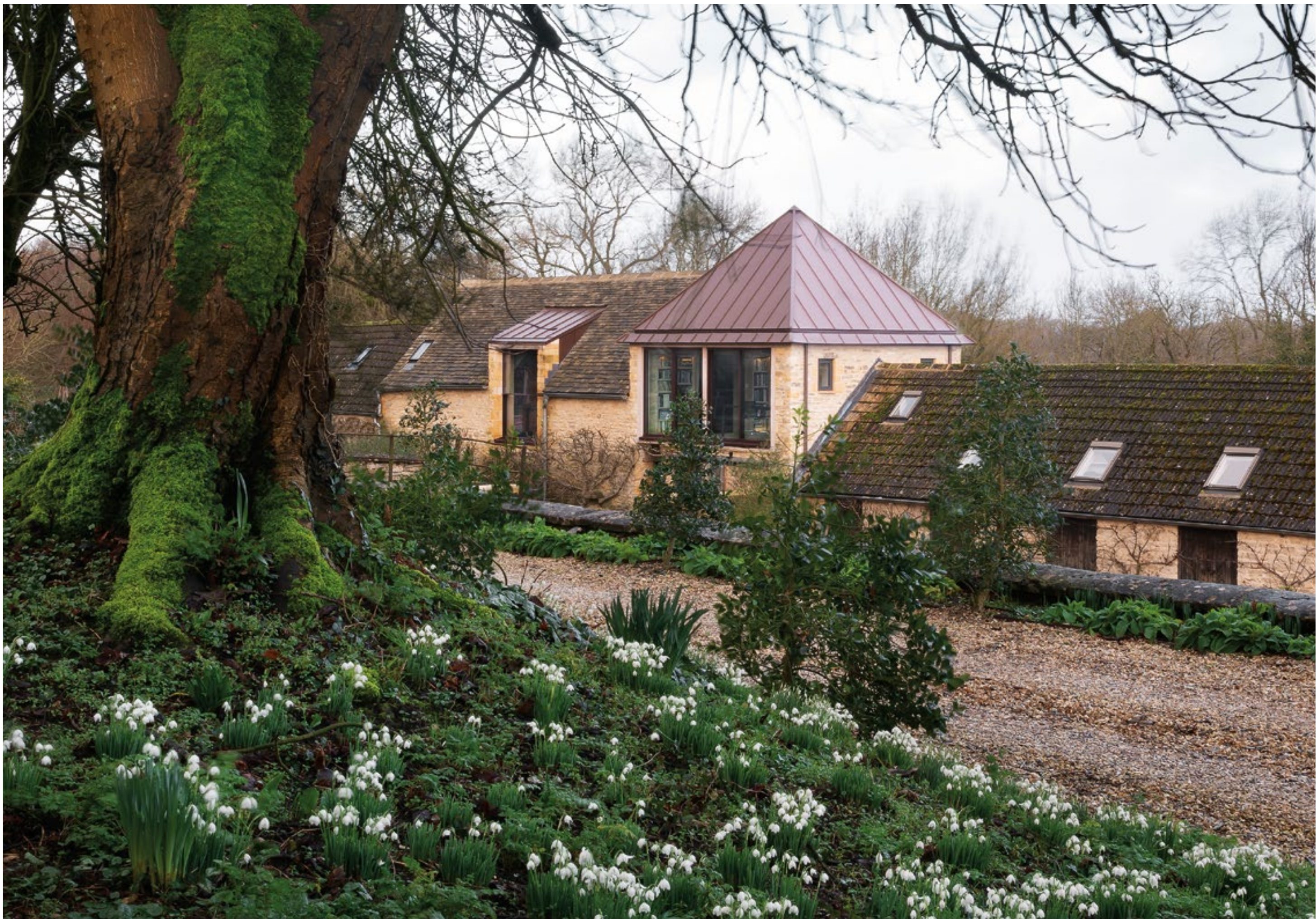
WORDS **AMY FREARSON**

Converting a farmhouse, hay barn, cow shed or grain silo is rarely easy. They're all utilitarian by nature, so there's usually a lot of work involved in making them comfortable enough to live in. And just like any renovation, you can never quite be sure of the condition of the structure until you start uncovering it. But the risk is worth the reward. Heavy-duty materials and generous proportions mean these buildings are typically spacious, robust and full of character. If you want a home that looks like it belongs in the countryside, it's hard to find a better option.



1 **LUXURY UPGRADE** This two-storey, 450sqm family home in a hamlet in Norfolk was built around the steel frame of a former grain store. Designed by 31/44 Architects, the four-bedroom house pays tribute to its predecessor in various ways, from the corrugated metal that clads the façade to a silo-inspired drum structure that contains the staircase.

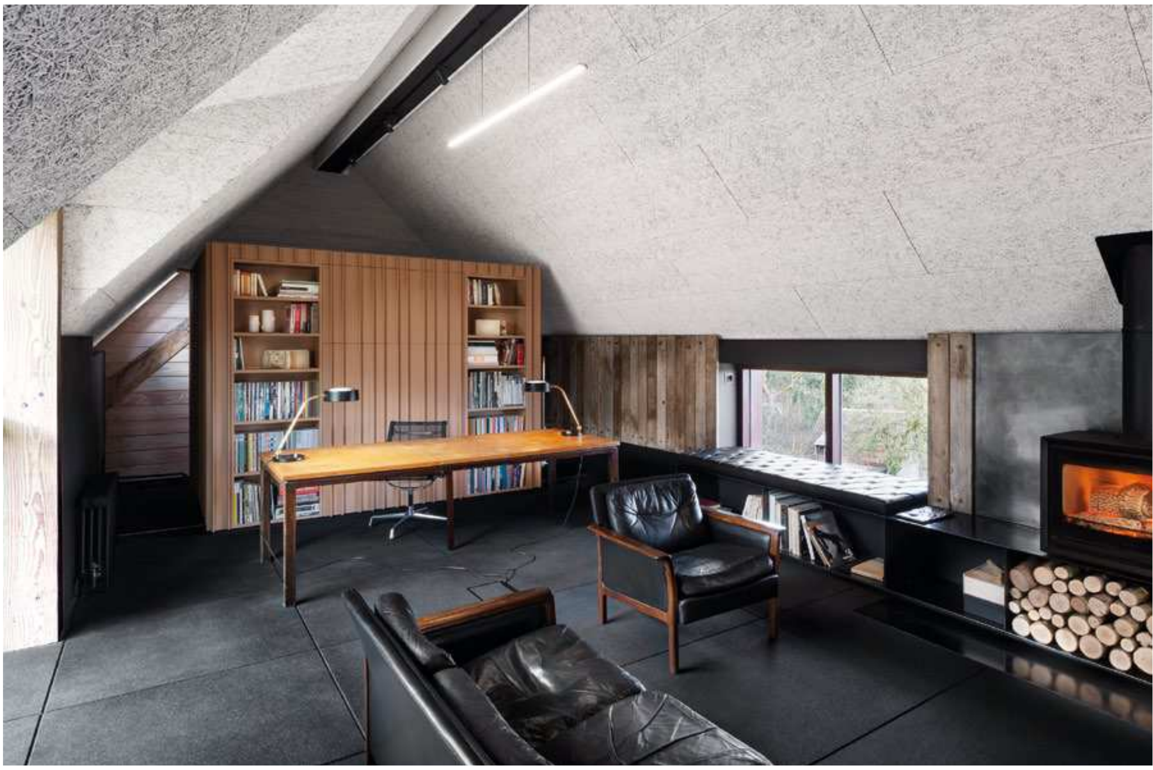
Owners Luke and Klara Hawes, who are both designers, intended to use the house for holidays, hence the addition of an indoor pool, but then decided to move from London to make it their permanent home. (3144architects.com) »



2 TOP-LEVEL TURNAROUND

Architect Richard Parr has revamped several buildings on the estate where he lives and works in Nympsfield in the Cotswolds. But when it came to converting the grain loft, he created something a little bit special.

As well as designing a meeting area and breakout space, he has a private studio that takes full advantage of the rural views. On both sides of the room, the former grain-loading doors have been replaced with floor-to-ceiling glazing. Bookshelves are built into the walls, while exposed rafters overhead reveal the steep slope of a new pyramid roof. (richardparr.com)

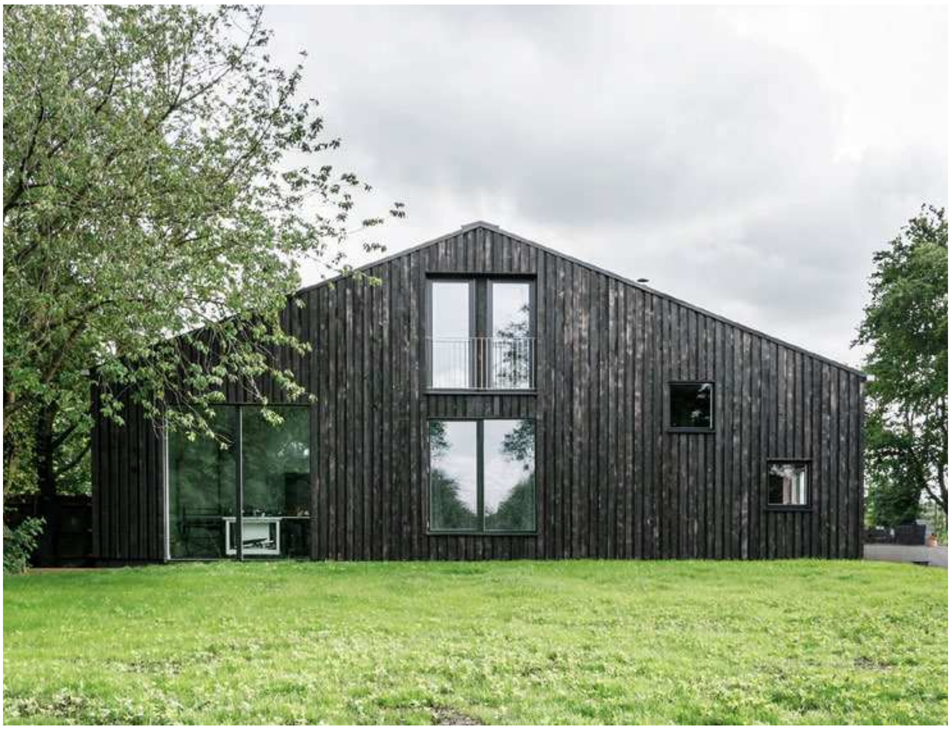


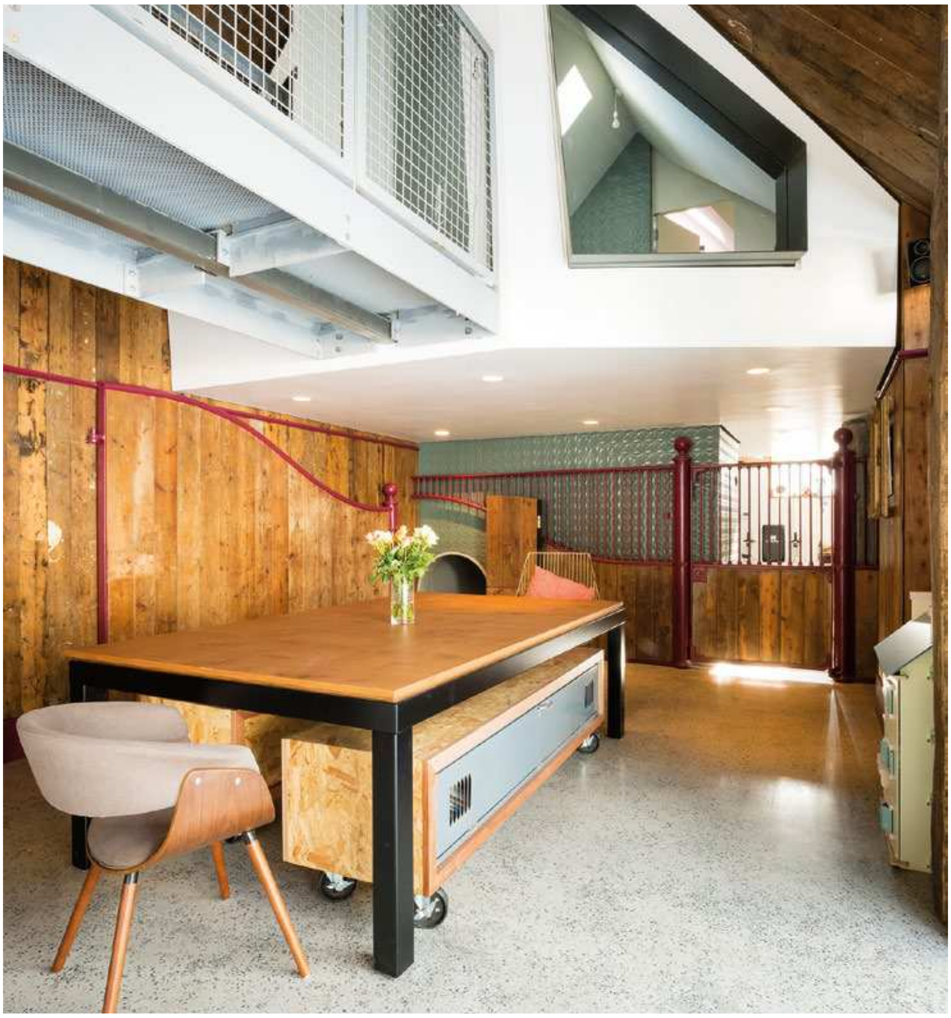
3 CREATIVE SPACE

A former tractor shed near Bishop's Stortford, Hertfordshire, has been transformed into a four-bedroom home and workspace for an artist. It cost around £750,000.

Its owner embarked on the conversion after deciding to move back to the area he grew up in, and wanted a home inspired by the farmhouse where he'd spent his childhood.

HeathWalker Studio organised the interior to create a mix of open-plan spaces and cosy nooks. The dilapidated metal cladding was replaced with a new charred timber exterior, made with trees felled from the surrounding land, while a 10kW air-source heat pump supplies the hot water and underfloor heating. (heathwalker.uk)





4 FAMILY-FRIENDLY UPDATE

When Craig and Jane Bonner, who have two children, asked architecture practice Alter & Company to modernise their Grade II listed farmhouse near Woking, Surrey, the brief was for a fun, contemporary family home.

The first step in the £650,000 remodelling project was to build a glazed extension connecting the house with the neighbouring stable block, where they have created three more bedrooms, a new living room and this dining space.

The stable block conversion involved inserting a mezzanine floor and adding a series of playful features. These include a curved staircase that is part engineered wood Oriented Strand Board (OSB) and part perforated steel, a slide that connects the first-floor study with the dining room, a gable wall doubling as a blackboard, and a suspended net that forms an extension of the children's playroom. (alterandcompany.com) »

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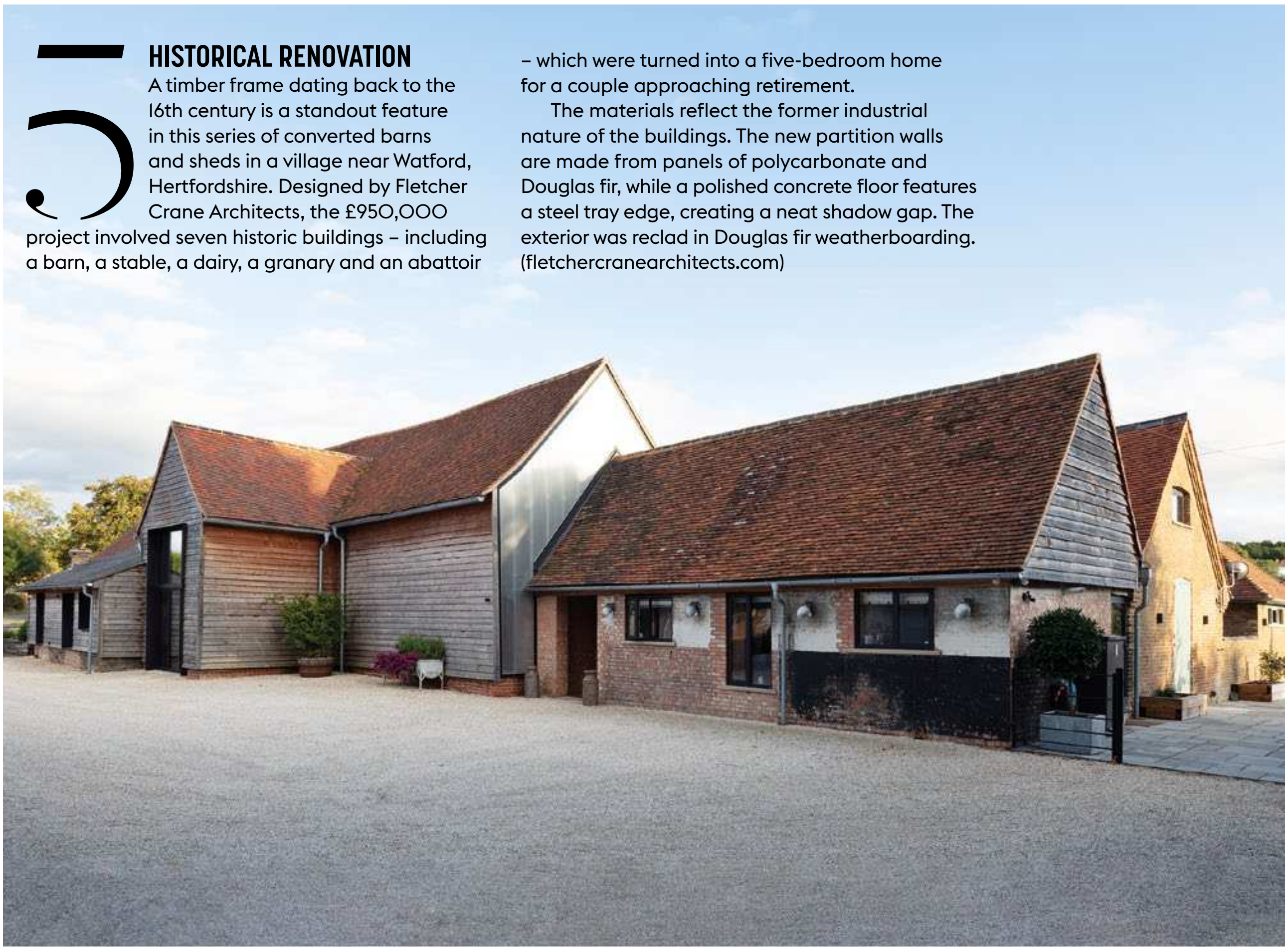
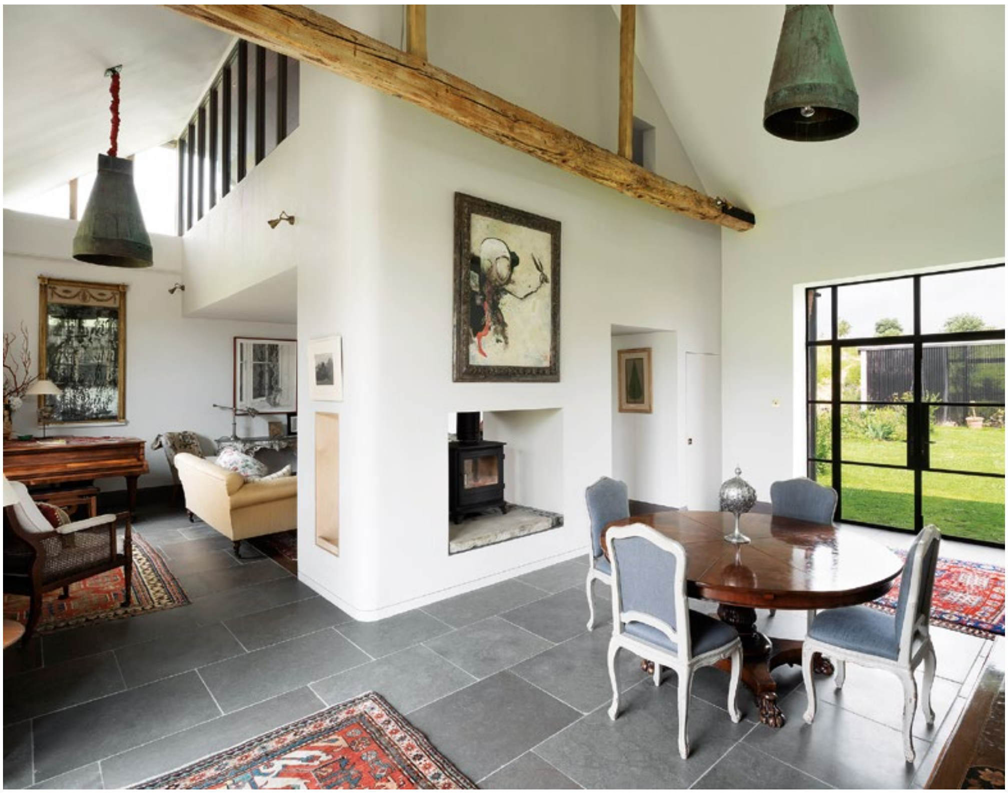
5 HISTORICAL RENOVATION

A timber frame dating back to the 16th century is a standout feature in this series of converted barns and sheds in a village near Watford, Hertfordshire. Designed by Fletcher Crane Architects, the £950,000 project involved seven historic buildings – including a barn, a stable, a dairy, a granary and an abattoir – which were turned into a five-bedroom home for a couple approaching retirement.

The materials reflect the former industrial nature of the buildings. The new partition walls are made from panels of polycarbonate and Douglas fir, while a polished concrete floor features a steel tray edge, creating a neat shadow gap. The exterior was reclad in Douglas fir weatherboarding. (fletchercranearchitects.com)





6 EXPANSION PROJECT

Farm buildings are often clustered together, which really helps when it comes to adapting them. A couple living in a converted barn near Petersfield in the South Downs, Hampshire, have taken full advantage of this by extending into an adjacent flint-walled main barn.

The renovation, which was overseen by architectural practice Denizen Works, adds an extra 136sqm to the three-bedroom home, giving it a new living room, dining room, kitchen and mezzanine study.

Glazing infills in the old door openings allow light to reach through the centre of the space, and the rooms have very high ceilings due to the exposed roof trusses overhead. (denizenworks.com) »

GLOWING REPORT

For eco woodburning stoves and fires, choose Stovax

From January 2022, stove manufacturers can only produce solid fuel appliances that comply with Ecodesign regulations. Stovax is at the forefront of innovation, offering the very latest heating technology on the market.

The company is home to the UK and the Republic of Ireland's largest selection of Ecodesign stoves and fires. As well as offering top-of-the-range performance, its log burners can be used for off-grid living – for those in rural areas, an alternative to central heating can be vital in the case of prolonged power outage.

But wherever you live, if you're updating your log burner, make sure to choose one with all the latest eco credentials. Ecodesign stoves such as the Futura 5 woodburner feature specially designed fireboxes that provide a substantial amount of heat and a highly efficient burn, while reducing emissions.

If you prefer a built-in option, the inset Studio Air woodburning fire combines style and functionality. Studio Air has an uninterrupted landscape view of the flames, and can be installed with a dedicated external air supply, plus it has highly responsive, easy-to-use controls so you can get the most from your fire with minimal effort.

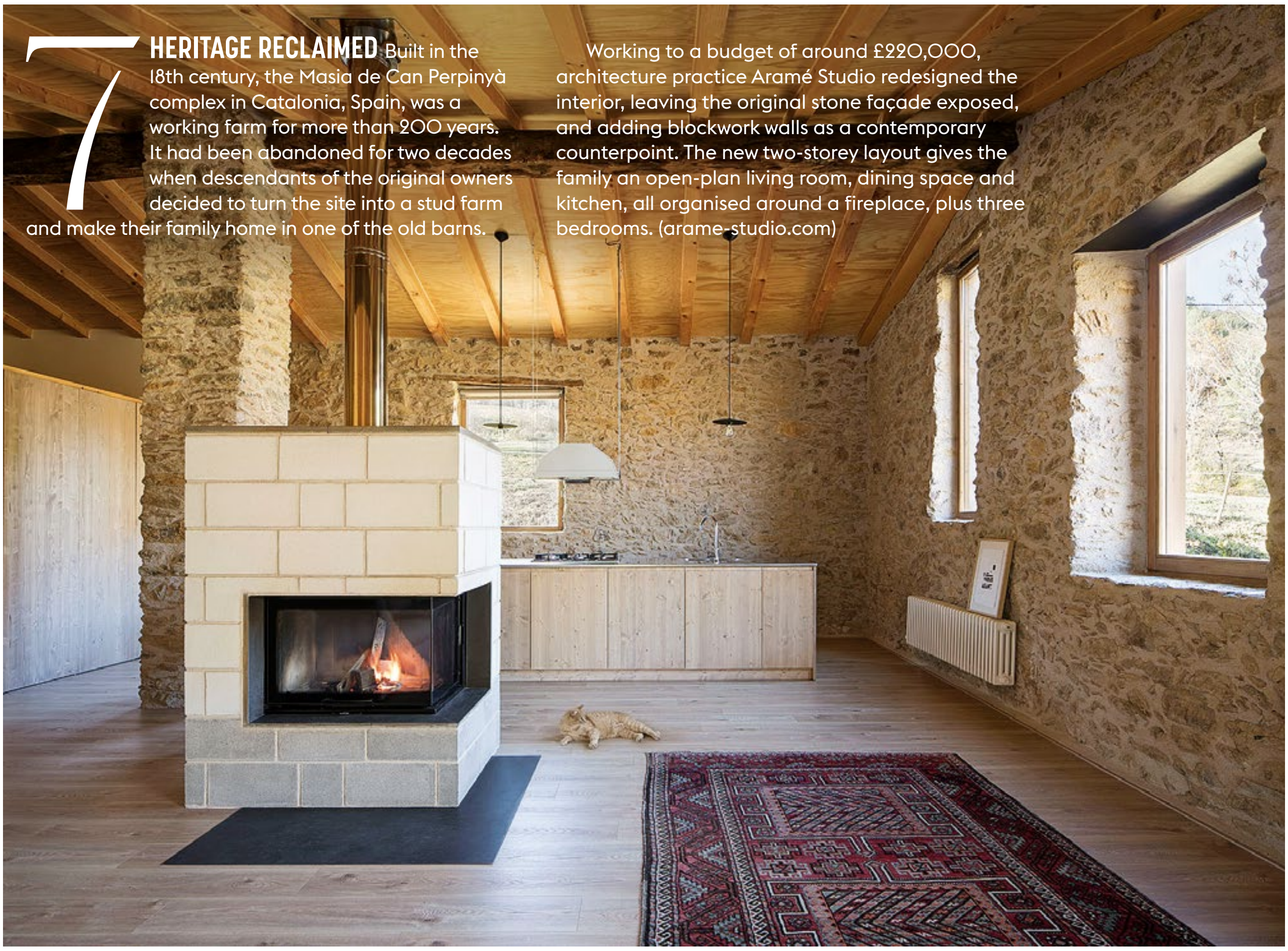
Whichever style you choose, buy your log burner from an approved local retailer who can assist with everything from size and installation to aftercare.

TOP Stovax's Futura 5 woodburning stove features a curved door and expansive viewing window, from £1,195

ABOVE The Studio Air inset woodburning fire can be selected as a frameless Edge, from £2,339

● **To find your nearest retailer, visit stovax.com/retailers**

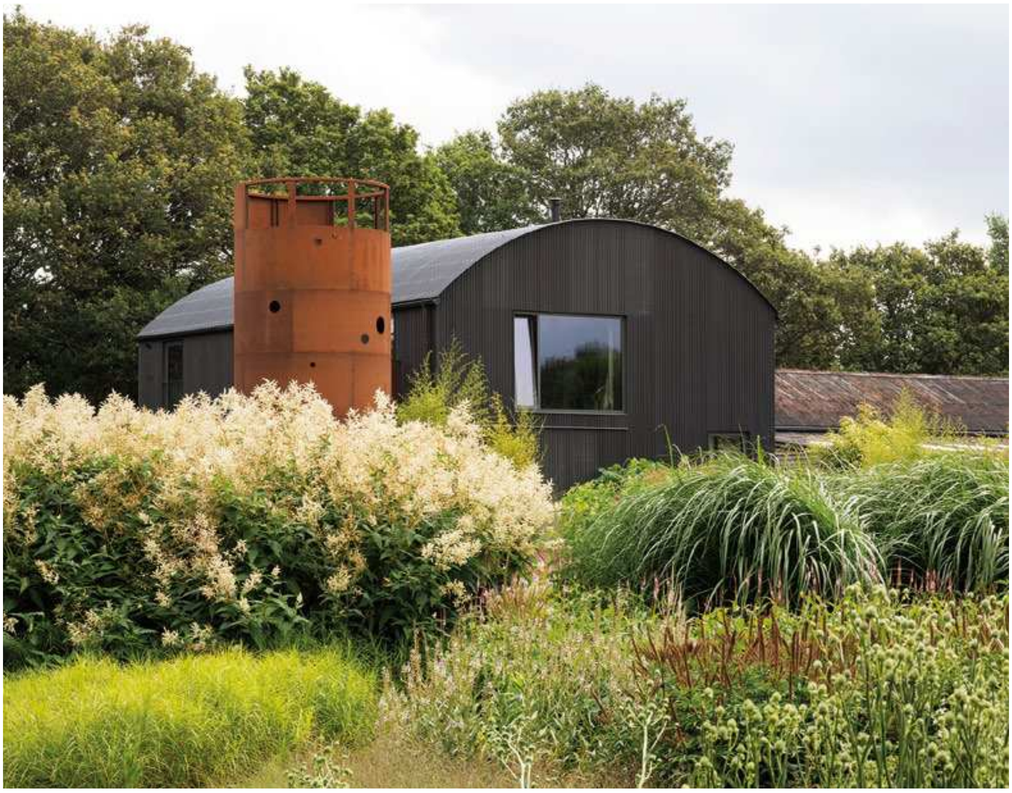
STOVAX GAZCO



7 HERITAGE RECLAIMED

Built in the 18th century, the Masia de Can Perpinyà complex in Catalonia, Spain, was a working farm for more than 200 years. It had been abandoned for two decades when descendants of the original owners decided to turn the site into a stud farm and make their family home in one of the old barns.

Working to a budget of around £220,000, architecture practice Aramé Studio redesigned the interior, leaving the original stone façade exposed, and adding blockwork walls as a contemporary counterpoint. The new two-storey layout gives the family an open-plan living room, dining space and kitchen, all organised around a fireplace, plus three bedrooms. (arame-studio.com)



8 BARN AND GARDEN

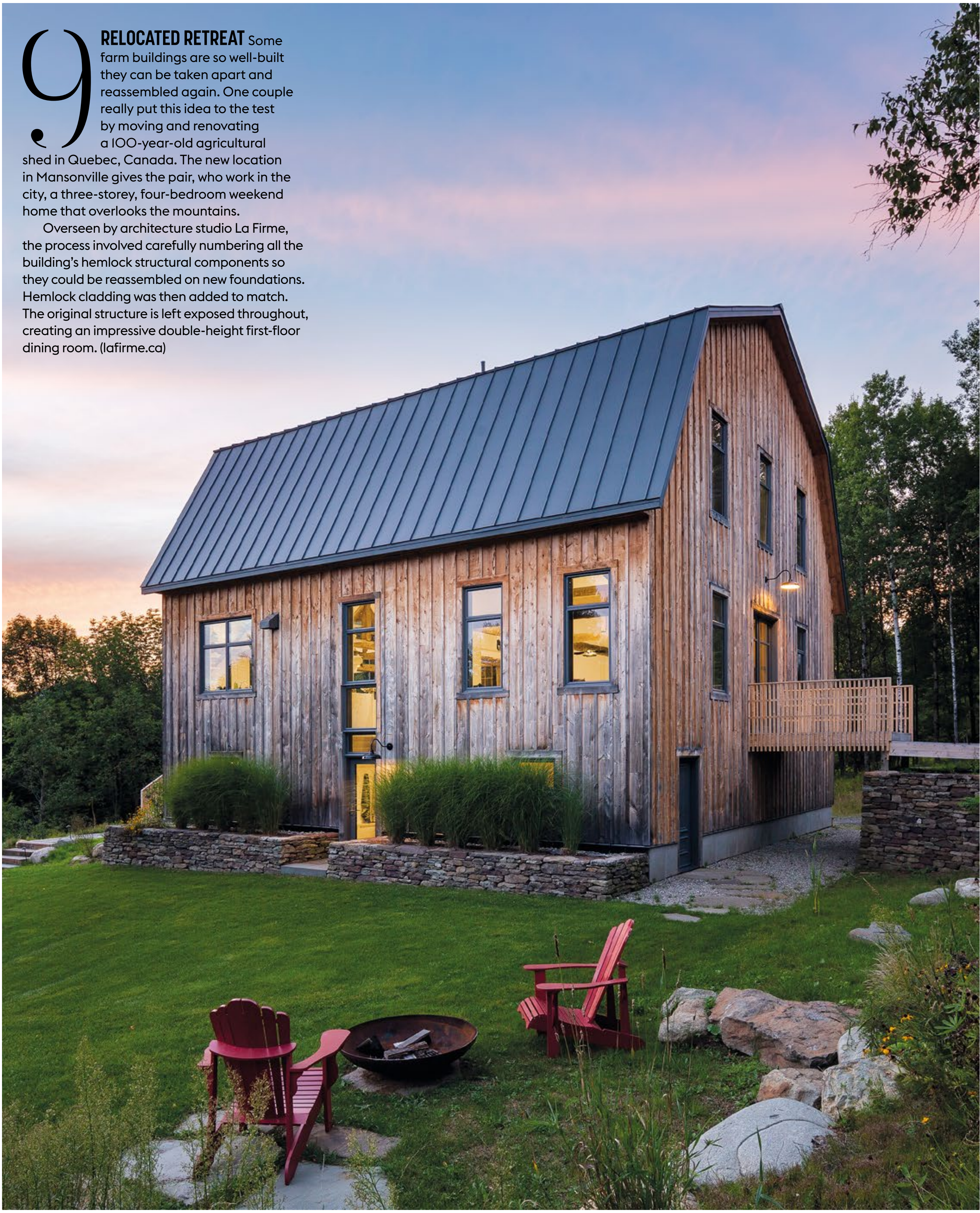
The agricultural building that Paul and Pauline McBride have converted into their home is a Dutch barn, a type of structure that typically features a curved roof and open sides, and is used for storing hay.

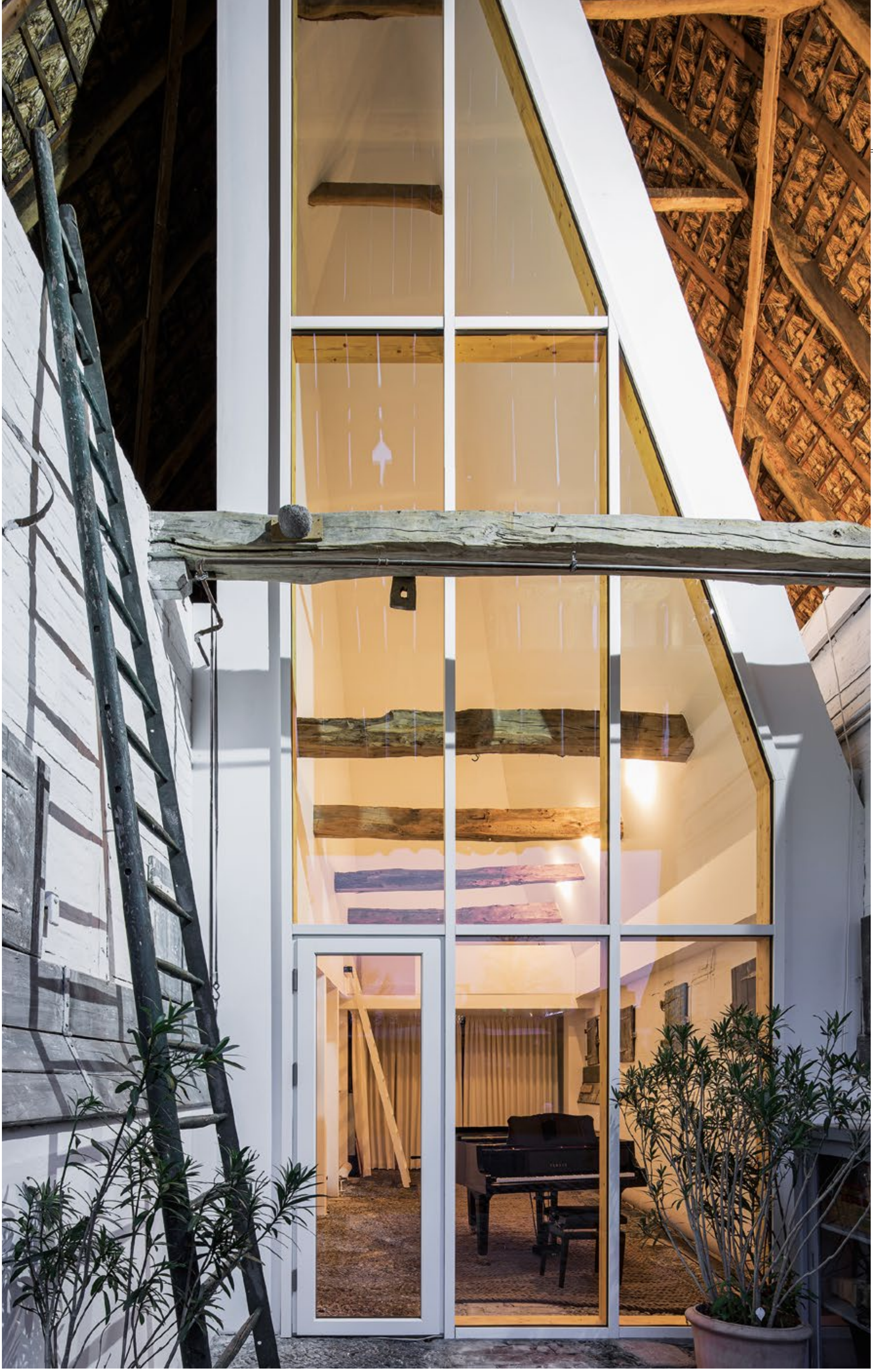
The design by architect Sandy Rendel celebrates the building's heritage with a new exterior of black corrugated steel, and red steel trusses that reinforce and draw attention to the barrel-vaulted ceiling. A new first floor creates space for three bedrooms and a home office.

Completed for £2,161 per sqm, the house allows Paul and Pauline to live next to Sussex Prairies, a public garden they founded near Henfield, West Sussex. (sandyrendel.com) »

9 RELOCATED RETREAT Some farm buildings are so well-built they can be taken apart and reassembled again. One couple really put this idea to the test by moving and renovating a 100-year-old agricultural shed in Quebec, Canada. The new location in Mansonville gives the pair, who work in the city, a three-storey, four-bedroom weekend home that overlooks the mountains.

Overseen by architecture studio La Firme, the process involved carefully numbering all the building's hemlock structural components so they could be reassembled on new foundations. Hemlock cladding was then added to match. The original structure is left exposed throughout, creating an impressive double-height first-floor dining room. (lafirme.ca)





PHOTOGRAPHY NICK DEARDEN, GILBERT MCCARRAGHER, ADRIEN FOUERE, JIM STEPHENSON, NICK KANE, DEL RIO BANI, RICHARD CHIVERS, CHRISTIAN FLATSCHER, ULYSSE LEMERISE BOUCHARD

10 **BUILT WITHIN** A *Hallenhaus* is a specific kind of farm building found in the north and west parts of Germany, bringing barn storage and living spaces together under one roof. Milena Schmiz owns one built in Essen in the 18th century, but as she and her husband are musicians rather than farmers, they didn't have any use for the barn space.

This led her to commission Danish architect Sigurd Larsen to design two self-contained structures that could be slotted into the building, with one used for music practice and the other providing a fifth bedroom to rent out. As planning restrictions prevented permanent changes to the heritage property, the £128,000 additions can easily be removed at a later date. (sigurdlarsen.com) **G**D

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10 things to know about modular homes

How to tell whether a prefabricated build is right for your project

WORDS **AMY FREARSON**

There are advantages to having your home built in a factory. Modular buildings can be completed faster than traditionally constructed ones, and offer a high level of quality and sustainability. Without the potential disruptions of building on site, the components are assembled efficiently, with minimal waste. 'In the 21st century, when cost is everything and we need to lower carbon, building in a factory gives a lot more control,' says Dick Shone, founder of Boutique Modern (boutiquemodern.co.uk).

There are two main types of off-site construction. The first, typically known as kit homes, includes buildings where the components are prefabricated, creating a series of parts to be assembled on site. But the term modular usually refers to houses that are entirely built in a factory and delivered to the site in completed sections. This more streamlined process is also known as volumetric construction. An entire house can be made out of three or four modules that are craned into place.

Most modular companies specialise in off-the-shelf designs, while others offer a more bespoke service where you can either customise a standard template, adapt a design the firm already has planning permission for, or start from scratch. »

This off-the-shelf house is designed by Koto (kotodesign.co.uk) and manufactured by Abodu (abodu.com). See more of the project overleaf

1

Access is everything

Location is the most important factor when assessing whether a modular home is feasible. ‘Can you get a crane to the site to deliver the house?’ asks Dick Shone. No plot is impossible, but narrow lanes or restricted access can make things harder, which will add to costs. For hard-to-reach sites, a kit home may be a more affordable solution.

2

Select the right supplier

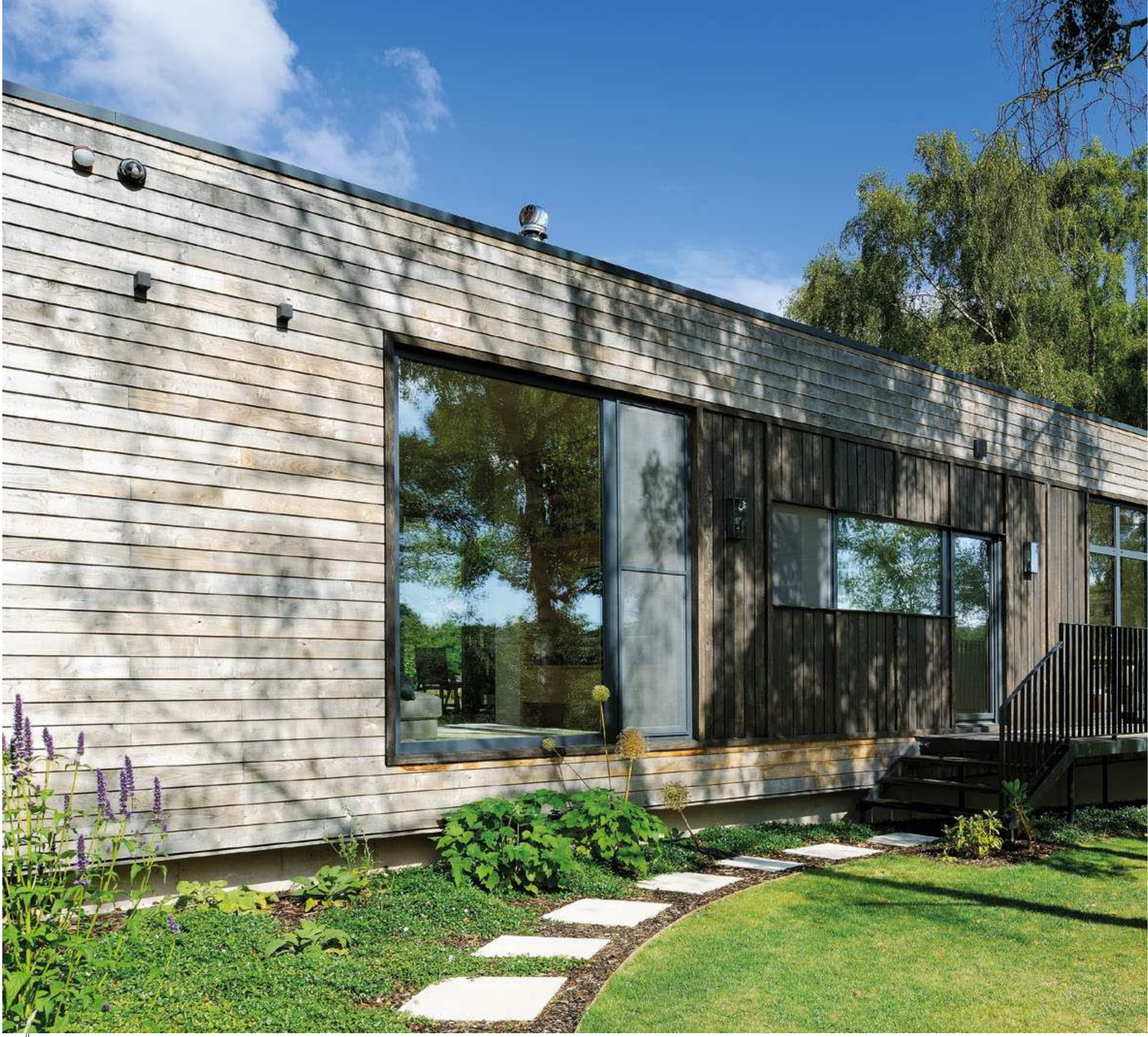
It’s important to choose a manufacturer suited to the type of house you want. Most of them specialise in a particular system, whether that’s cross-laminated timber (CLT), structural insulated panels (SIPs) or light-gauge steel frame. ‘There’s a massive range in what firms are offering,’ says Wilf Meynell of architecture practice Studio Bark (studiobark.co.uk). If you are unsure which to choose, Wilf recommends consulting an architect with experience in modular building before committing.

THIS IMAGE AND ABOVE Koto and Abodu collaborated on this one-bedroom modular house in San Jose, California, USA. It is also available in two-bedroom and studio versions, and can be ordered as it comes or customised to suit. From around £165,600

THIS IMAGE AND BELOW Designed by architect Mary Arnold-Forster (maryarnold-forster.co.uk), this two-bedroom house in the Scottish highlands is made of 12 modules produced by Carbon Dynamic (carbondynamic.com). It cost £350,000 in 2019

3 Sustainability is not guaranteed

While most modular houses offer impressive levels of energy efficiency once built, some are made from materials sourced from abroad, giving them high embodied carbon. To find the most sustainable approach it's a good idea to compare the claims of a few different manufacturers. 'Embodied energy is quite a complex thing to calculate,' says Wilf Meynell. 'But I think one of the key things is that we have to move away from petrochemical-based materials, towards natural products, recyclable options and things that are compostable.' »



4 There's plenty of room for imagination

Just because a house is prefabricated doesn't mean it has to look like it came from a catalogue. While kit homes are not generally that adaptable, a modular building can be created to almost any design. It's also possible to take an existing design and adapt it for off-site construction after it has planning permission. 'A modular company can pick up a scheme at any stage in the process,' explains Dick Shone.

ABOVE AND RIGHT This one-bedroom home near Lyndhurst in the New Forest is mobile, but looks permanent. Designed by architecture firm Pad Studio, it is constructed out of prefabricated modules that are elevated above the ground, making them easy to move. The property produces all its own energy, thanks to electricity-generating photovoltaics on the roof and an air-source heat pump that provides hot water and powers an underfloor heating system. The build cost was £400,000. (padstudio.co.uk)

5

Modular doesn't mean cheap

Prefabrication is often more expensive than on-site construction because it offers a higher standard of quality. 'There is a misconception that this is the cheapest way to build,' says Theo Dales of Koto (kotodesign.co.uk). But there is a lower risk of costs escalating once construction is underway. The most important thing to be aware of is that the price quoted by the manufacturer doesn't cover everything. You still need to buy the land and there can be other costs to factor in too – not all companies include groundworks in their packages.

6

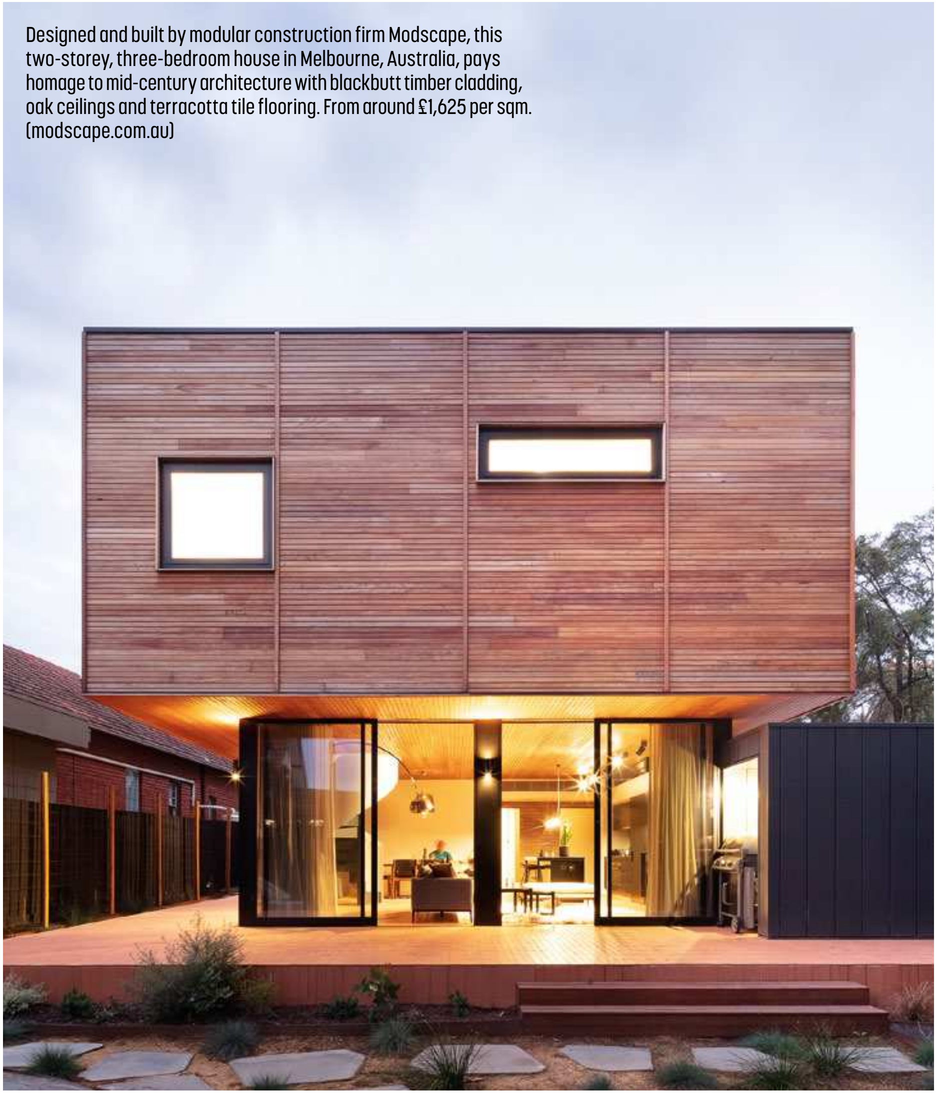
Every little detail must be decided in advance

While the planning process is much the same as for a traditional build, the detailed design stage is more comprehensive. Before the plans can be sent to the factory, everything from the floor finishes to the doorknobs needs to be specified. This can be challenging, particularly if you aren't used to visualising a space in three dimensions, but it allows the manufacturer to give you a fixed price early on in the process. »

THINK AGAIN?

Advice on when to choose a traditional or kit build instead of going modular from **Theo Dales** of **Koto** (kotodesign.co.uk)

- Building modular gives you a hands-off experience, so it's not the best solution for those who want to be involved in the process and see the building go up piece by piece.
- Good access from major roads is essential, and restrictions such as power lines, low bridges or bridges with low weight limits can make delivery unfeasible.
- If making last minute changes to the design is your thing, then this process isn't the one for you.



Designed and built by modular construction firm Modscape, this two-storey, three-bedroom house in Melbourne, Australia, pays homage to mid-century architecture with blackbutt timber cladding, oak ceilings and terracotta tile flooring. From around £1,625 per sqm. (modscape.com.au)

WoodUpp's Classic Oak panel on grey felt

BELOW RIGHT Antique Oak on black felt

SOUND INVESTMENT

Wooden panels from WoodUpp reduce noise pollution and create stylish feature walls

WoodUpp produces beautiful timber products that are designed to enhance the look of a space while improving its acoustic performance.

The company's flagship product is the Akupanel – a wall panel made from wooden slats backed with felt – which brings both style and a sense of calm into homes and workplaces.

WoodUpp manages each aspect of the production process, from selecting trees for the timber through to distributing the finished product. This ensures the customer benefits from the highest possible quality. All the timber is sourced from sustainable forests, protecting the woodland for future generations, and the company is committed to safeguarding the local communities and wildlife.

One benefit of the Akupanel is that you can easily achieve significantly reduced noise levels without having to make major changes to your home.

The acoustic felt backing makes the panels straightforward to install and adjust, if necessary. The high-quality veneer strips are available in several colours and adapt well to any interior scheme.

WoodUpp's passion for creating quality products and providing great service has led to its recent expansion into the UK, with a newly established London warehouse. Explore the colour range or order samples online. *For 10 per cent off the entire range until 31 January 2022, use the code GDM10 at the checkout*

● **For more information, visit woodupp.co.uk**

WOOD UPP

Architecture practice Fox Johnston (foxjohnston.com.au) worked with Modscape (modscape.com.au) to develop this two-storey home in Sydney, Australia. The sections are connected to create an open-plan space on the ground floor, while the upper level is divided into five bedrooms and two bathrooms. From around £1,625 per sqm

7 You can rely on the schedule

Depending on the manufacturer, the build time varies from between eight and 18 weeks. But you can expect a prefabricated house to be delivered exactly on time because everything runs to a very strict schedule. The foundations and services can be installed on site while the house is being built in the factory, which speeds the process up even more.

8 Delivery is not the final stage

In most cases delivery of the modules will be complete in a day, but that's not the final stage. It can take a further six weeks to join them for a seamless finish, connect the services and add fittings such as outdoor decking or woodburning stoves. Once it's all done, most manufacturers will offer an aftercare package in case anything is faulty. »

An insulated concrete foundation supports the four prefabricated modules that form this three-bedroom home on a woodland site in Sharon, Connecticut, USA. The project was built by Resolution: 4 Architecture at a cost of around £3,950 per sqm. (re4a.com)

ABOVE A couple approaching retirement wanted to downsize their home in a village near Wrexham, Wales. They split off part of their garden to create room for a modular house from manufacturer Dan-Wood. They chose a three- to four-bedroom model, but adapted the design to create two big bedrooms with en-suite bathrooms. The house was constructed in just six weeks. The Dan-Wood Living Point 150E costs £197,800, excluding plot, foundations or groundworks. (dan-wood.co.uk)

9 There's no such thing as an easy build

Don't let the strict programme fool you – no project is ever without incident. As with any self-build, there are still things that can go wrong throughout the process. The measurements might be incorrect, or it might be too windy to use the crane on installation day. Staying alert at every stage of the process will minimise the impact of any minor mishaps.

10 Things can be adapted later

These houses are easy to extend if you want to make changes in the future. Many manufacturers will label their projects with a QR code which you can scan to find out the full specification. This means you can make sure the new additions match the old, whether you want to repaint the walls or add an extra bedroom. GD

PHOTOGRAPHY JOE FLETCHER, DAVID BARBOUR, NIGEL RIGDEN

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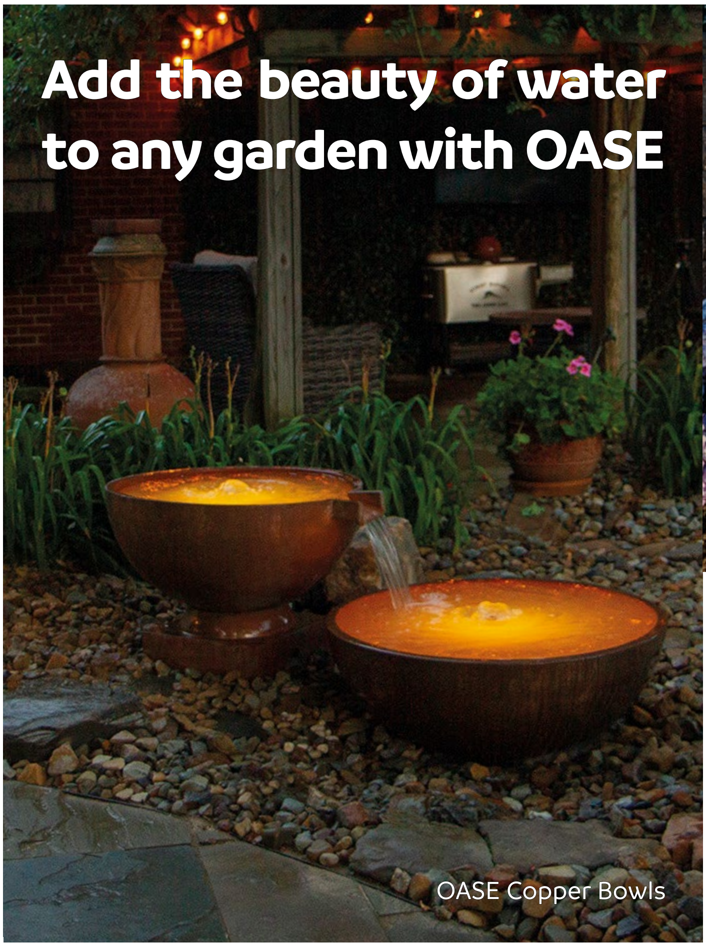
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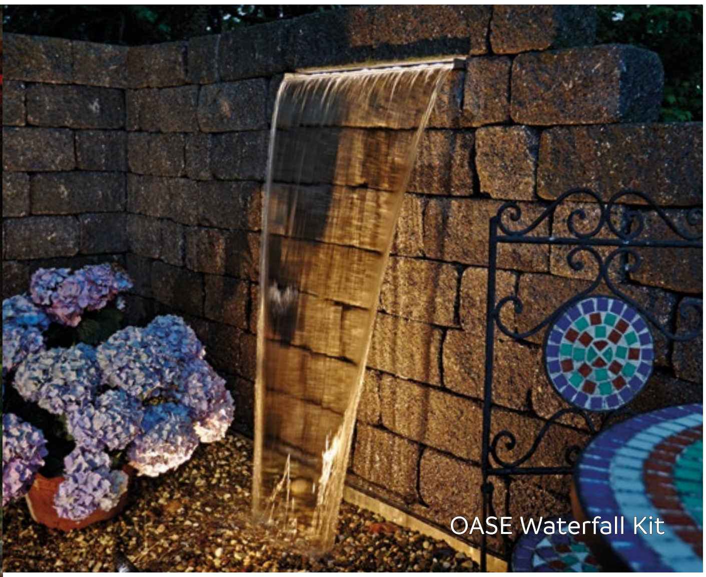
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FOCUS ON

TVs and projectors

Upgrade your home entertainment with the latest big screen technology

WORDS **CHRIS HASLAM**

Panasonic's 50in JX850 Series 4K UHD LED TV has Dolby Atmos sound and universal HDR, so it adjusts the screen to the optimal settings for the source (Netflix or Blu-ray for example). From £799. (panasonic.com)

Only a decade ago, many televisions were hulking great cathode-ray tube (CRT) boxes that dominated the room, requiring sturdy furniture to support them and several people to move them.

After that came liquid crystal display (LCD) and plasma screen televisions, which took up a fraction of the space, but cost more than a car and had generally disappointing picture quality. What a difference a few years makes.

With the advent of smartphones, tablets and streaming services, TV manufacturers have been forced to catch up. Recent years have seen phenomenal advances in set design, screen quality, sound, compatibility and usability. Even the most advanced models are intuitive, so no matter where you find your content – Netflix, Sky, YouTube or terrestrial channels – you'll be able to access it at the touch of a button, or the sound of your voice. »

NEW RESOLUTIONS

Since the adoption of the flat panel TV, screen technology has evolved, with resolutions always improving. Huge 4K ultra high-definition (UHD) televisions are commonplace, with some 43in designs costing less than £300.

4K screens boast amazing image quality, with four times the number of pixels of a 1080p full HD TV screen. But with most new sets having it as standard – and 8K not yet mainstream – manufacturers have started to develop new technologies that promise even better image quality.

LED is the most affordable screen, offering a bright, punchy picture, a lightweight build and a wide range of sizes.

OLED (organic light emitting diode) is a technology developed by LG (lg.com) with exceptional contrast because each pixel has its own backlight. The result is smooth motion, deep blacks and vibrant colours all housed in a thin frame. Regarded as the best image quality available, these TVs are expensive, with prices from £899.

QLED (quantum dot LED TV) from Samsung (samsung.com) is an updated version of LED, with a brighter picture. It also works well with still images, allowing you to show them when it's in standby mode, while external light is absorbed by the display to reduce glare. It's more affordable than OLED, with prices from around £500.

Samsung recently added Neo QLED to its line-up, with prices starting from £1,299. It uses tiny LED bulbs in the screen to help improve motion and contrast control. LG has its own mini-LED range called QNED, which is more affordable than its OLED TVs, but still offers excellent image quality.

With AI image processing and high-fidelity Dolby Atmos audio, the Philips OLED+936 is a premium 4K OLED TV available in 48in, 55in and 65in models. From £1,800. (philips.co.uk)

A glimpse into the future from the USA, this enormous LG DVLED TV is custom-installed and available in screen sizes up to 325in, offering pixel-perfect viewing. Priced from around £22,000. (lg.com)

HOW BIG?

Screen sizes have increased enormously. In 1997 the average American TV was just 22in, but by 2020 it was 49in according to a survey by the Consumer Technology Association (cta.tech). These days 85in screens are widely available, while LG recently demonstrated DVLED TVs measuring up to 325in in the USA.

The size you need depends on the dimensions and layout of your room. Ideally, the viewing distance should be roughly 1.5 times the size of your screen if you're buying a set with 1080p full HD resolution. Sit any closer and the picture will look grainy. 4K and 8K sets look good even up close, so you can go as big as your space allows.

To find the optimal screen size for a particular room, try an online calculator such as inchcalculator.com. But if you're investing in a quality 4K screen, choose whatever size suits your space and style.

Dolby Atmos, hidden speakers, and an intuitive Vidaa operating system that takes care of streaming services and platforms are all features of the updated Bild I 4K OLED panel from Loewe. Available in 48in, 55in and 65in models, from £2,699. (loewe.tv)

KNOW THE ESSENTIAL JARGON

- **Smart TV** - Almost all sets now come with Wi-Fi connectivity and smart functionality, meaning you can download streaming and catch-up apps such as iPlayer and Netflix.
- **PVR** - A personal video recorder is a common feature of set-top boxes such as Sky Q (sky.com). Having a hard drive built into your TV means that you can record shows and movies to watch later. Twin-tuner PVRs can record two shows at once.
- **Freeview Play** - A great system for watching terrestrial channels, as it enables you to scroll back through the previous week's TV from within its digital programme guide.
- **Voice control** - Just press the mic button on the remote, or use a specific key phrase, and you can ask your TV to change channels, adjust the volume, search for films or open streaming apps.
- **HDR** - Most new 4K sets have High Dynamic Range, but it's a useful extra as it improves contrast and offers better colour reproduction, making whites crisper and blacks deeper.

SOUND AND VISION

Flatscreen televisions have flawless picture quality, but their ultra-thin panels can disappoint when it comes to sound. Manufacturers are working hard to make improvements.

Philips (philips.co.uk) has recently partnered with audio specialist Bowers & Wilkins (bowerswilkins.com). Their flagship Ambilight 48OLED935 model costs £1,499 and features a high-quality sound system built into the stand. Sony's impressive Acoustic Surface technology (sony.co.uk) is on show in the Bravia XR XR55A8OJ, £1,499, which essentially turns the entire screen into a speaker.

To improve the sound from your flatscreen and create a more immersive cinema experience, invest in surround sound speakers. By carefully positioning them and combining with Dolby processing (the sound data) from your TV or AV receiver, you can hear the action move around the room and, with Dolby Atmos, over your head.

Virtual surround sound from soundbars can be surprisingly good without cluttering up your living room. A soundbar sits in front of the screen and projects audio around the room, while also doubling up as speakers, often with voice control and multi-room capabilities. »

Compact, stylish and slotting seamlessly into a Sonos multi-room audio system, the Beam Gen 2 soundbar features Dolby Atmos for realistic 3D sound. From £449. (sonos.com)

Along with its superb QLED technology and 4K resolution, the 43in Samsung Frame is able to display art and photos when in standby. Choose from five colours, two frame profiles, and the option to include My Shelf, a purpose-built display board. From £899. (samsung.com)

MINI MULTIPLEX

Portable projectors have improved a lot in the past few years. You can now enjoy a 100in screen streaming the latest from your favourite platform, with built-in speakers and remote control via your smartphone, for just a few hundred pounds. Costing £339, the battery-powered Nebula Capsule (uk.seenebula.com) is no bigger than a can of fizzy drink.

These go-anywhere models are ideal as a second TV for the house, and while they don't have the resolution to match a 4K TV or a full-sized projector, they're great for binge-watching in bed.

Short-throw all-in-one designs such as the LG Cinebeam, from £900, can sit just inches from the wall, but still project a huge image, and disappear into a cupboard when not in use. **GD**

Impressive value for an all-in-one 4K projector capable of a 150in screen, the Nebula Cosmos Max is has automatic focus and alignment, 360-degree sound, Android TV streaming, and upscaling for lower-resolution content. It costs from £1,399. (uk.seenebula.com)

SECRET CINEMA

Enjoy a big screen home cinema without cluttering up your space with these tips from **Jools Browning** of **Brownhen Solutions** (brownhensolutions.com)

- If you want a home cinema in a multifunctional room, specify speakers that are built into the ceiling or walls and plastered over. Subwoofers can be hidden in the wall with just a small port in the skirting board, and choose a TV that appears from behind a panel.
- Drop-down projectors and projector screens offer the least visible solution, but remember to factor in blackout blinds as projectors don't work as well as the latest backlit TVs in bright spaces.
- If the room is also used for gaming, a TV might be better as there's less lag from the input sources, offering a smoother experience, and not everyone wants to watch the news on a projector. It's not unusual to have a TV and a projector, with a screen dropping down in front of the TV when required.
- Remember to factor in storage for the technology needed to run your home cinema, including AV receivers, amplifiers, set-top boxes, games consoles and media players. A member of Cedia, the Custom Electronics Design and Installation Association (cedia.net), will be able to advise on the best option for your space and budget.

Designed for outdoor use, the battery-powered BenQ GS50 portable DLP projector has 1080p full HD resolution, loud 2.1 stereo sound, Android TV for seamless streaming and it's splash- and drop-proof. £POA. (benq.eu)

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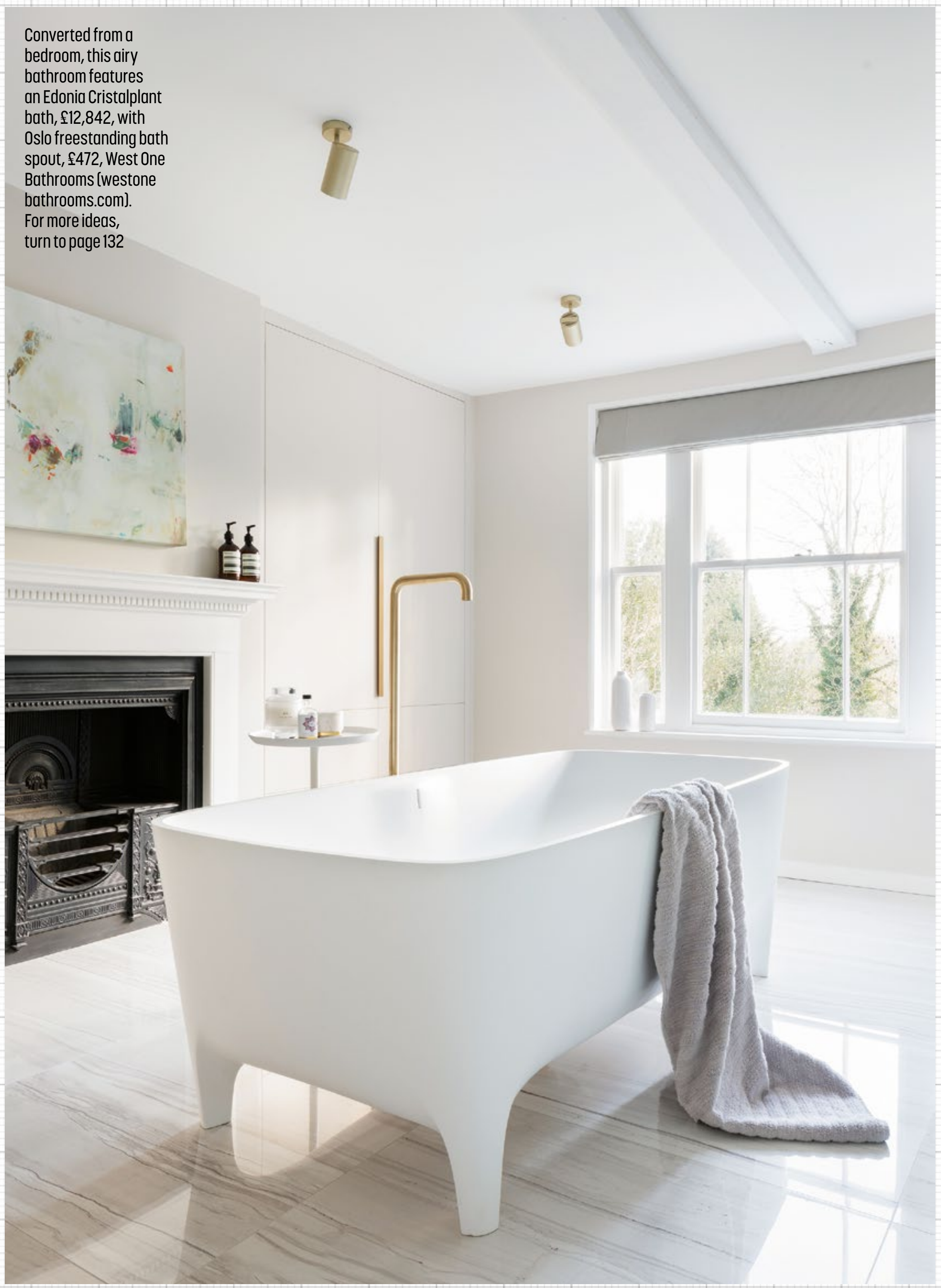

Converted from a bedroom, this airy bathroom features an Edonia Cristalplant bath, £12,842, with Oslo freestanding bath spout, £472, West One Bathrooms (westone bathrooms.com). For more ideas, turn to page 132

THORNHILL RANGE COOKERS

British Designed Range Cookers that don't cost the earth

Graham Thornhill of Thornhill ECO Design Ltd, has designed a complete range heavy iron cooker, with the aim of increasing effi-ciency, reducing fuel costs, maintenance costs. pollution and being as carbon neutral as possible. These cookers are manufac-tured in Canterbury using 95% parts sourced in the UK. A truly British cooker from start to finish. Thornhill has succeeded in designing a range of classic looking cookers that are easy to use and can cost as little as £2.50 a week to run.

Pellet Cooker 3 oven, fully automatic with complete control. Heats up in 30 minutes and very green. Fuel hopper filled every 3-4 days. + Electric Hob.

The woodburning 5 oven hybrid, and 3 oven cooker are 86% efficient & uses just 1kg of dry logs/hour. The 5 oven hybrid has 2 electric ovens, grill and twin burner ceramic hob as well.

Both have the Thornhill Turbo Technology (T3) patented burning engine for low emissions and efficient burn.

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New electric model with 3 or 5 ovens, planch plate fully temperature controlled.

www.ecorangecooker.co.uk *01 227 780 830* *info@trcookers.co.uk*

KITCHEN UPGRADE

Wooden wonder

Nordic Nature is Magnet's latest kitchen range. It features slab or fluted doors made with responsibly sourced oak veneer, which can be teamed with Vitrine Wave glass-fronted cabinets, rounded end panels, ribbed plinths and a selection of worksurfaces. It is available with factory-assembled or premium ID3 cabinets. From £5,388 for an eight unit kitchen. (magnet.co.uk)

High expectations

Novy's Crystal built-in extractor hood is designed to be integrated within a canopy or recess. Available in two sizes, in black or white glass, it can be either ducted or recirculating. Each model includes three speed settings, a power boost function and adjustable LED lighting. The B-rated W533xD313xH331mm hood costs £799, and the W833xD313x H331mm model, £999. (novy.co.uk)

A question of agility

The Agilis single lever tap from Abode has a handle on the end of its spout. This means you can turn it on and off with the back of your hand, wrist or forearm, making it more hygienic to use. Standing 277mm tall, with a reach of 201mm, the tap requires a minimum 0.75 bar pressure and is available in five finishes including this brushed brass design. Prices start from £319. (abodedesigns.co.uk)

Contemporary curves

Handcrafted in Cornwall, Tom Raffield's Green Range of home accessories includes new multipurpose pots and bowls. The hand-glazed earthenware Maen Pot has twin leather handles, and the Maen Pot Trio comes with a solid oak plinth. Each pot measures Dia160xH155mm and has a waterproof internal glazed finish making it ideal for cultivating herbs as well as storage. One pot costs £55, and the trio £185. (tomraffield.com) »

Updated classic

The Rossio ceiling light from Iconic Lights is ideal for lining up above a kitchen island unit or dining table. The shade comes in a matt black or celadon green-painted finish and has a gleaming gold interior. Measuring Dia400xH1,000mm, the non-dimmable pendant with hanging chain requires a 40W ES/E27 bulb or LED equivalent and costs £138. (iconiclights.co.uk)

Crafted with care

British brand Olive & Barr (oliveandbarr.com) offers affordable Shaker kitchens that are handcrafted in its UK workshop and include drawer boxes dovetailed in solid oak. All the materials used are carefully sourced and traceable. This bespoke tulip wood design has solid oak doors handpainted in Little Greene's Hicks' Blue and Pall Mall (littlegreene.com) and features Venatino Carrera quartz worksurfaces. From £10,000 excluding appliances.

Stone-effect style

A new Mink shade has been added to the Desert Sand, Anthracite, Chalk White and Pebble Grey colour options for Caple's Geotech sink. Choose from three inset ranges or the undermounted collection. Geotech is a granite composite made up of 80 per cent natural materials. The Canis 150 inset sink with drainer measures W1,000xD500xH200mm, and costs £351. (caple.co.uk)

History in the making

British heritage firms Burleigh, which makes tissue transfer-decorated ceramics, and Craven Dunnill Jackfield, a tile producer, have created a range of hand-moulded wall tiles featuring Burleigh's 1968 Calico pattern. Available in five colourful glazes, it comprises Burleigh Calico Decor tiles, 152x76mm, £10.74 each, and 152x152mm, £16.75, Chroma field tiles, 152x76mm, £3 each, and 152x152mm, £4.74, Signature dado tiles, 152x50mm, and skirting tiles, 152x152mm, £10.80 each. (cdjackfield.com)

WORDS PAULA WOODS

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WIN A FLEX BOILING WATER TAP FROM QUOOKER

Enter this exciting competition to be in with the chance of winning an energy-saving boiling water tap

This month, *Grand Designs* magazine has teamed up with boiling water tap specialist Quooker to offer readers the chance to win a Quooker Flex. The winner will be able to select their tap in a finish of their choice, whether polished chrome, stainless steel or black.

Since it was invented in 1970 by Henri Peteri, the boiling water tap has become an indispensable fixture of kitchens all over the world. Launched in 1992, the Quooker was the very first boiling water tap on the market. With inventions like the high-vacuum insulated tank, and all-in-one taps such as the Fusion and Flex, the company brought about a revolution in the kitchen that continues to this day.

Unlike with a kettle, where often more water is boiled than is needed, with a Quooker you use the exact amount of water you require. Quooker's vacuum tank allows the water to be kept at 110°C under pressure, keeping it hot without using much energy.

The Quooker Flex has a flexible pullout hose, which makes it easy to rinse the sink and reach any large or awkwardly shaped pots and pans. The tap supplies hot, cold and filtered water and, thanks to its in-built safety stop, can never dispense boiling water when the hose is extended, which protects the user at all times.

With its easy-to-select water options and in-built safety mechanisms, Quooker delivers the tap that does it all. So for your chance to win a Quooker Flex plus installation, see below. For more information on the range, visit quooker.co.uk. Good luck!

How to enter

➕ To win a Quooker Flex with PRO3 tank worth up to £1,490, visit granddesignsmagazine.com/win/ and answer the following question

When was the boiling water tap invented?
a) 1966 b) 1970 c) 1984

Quooker

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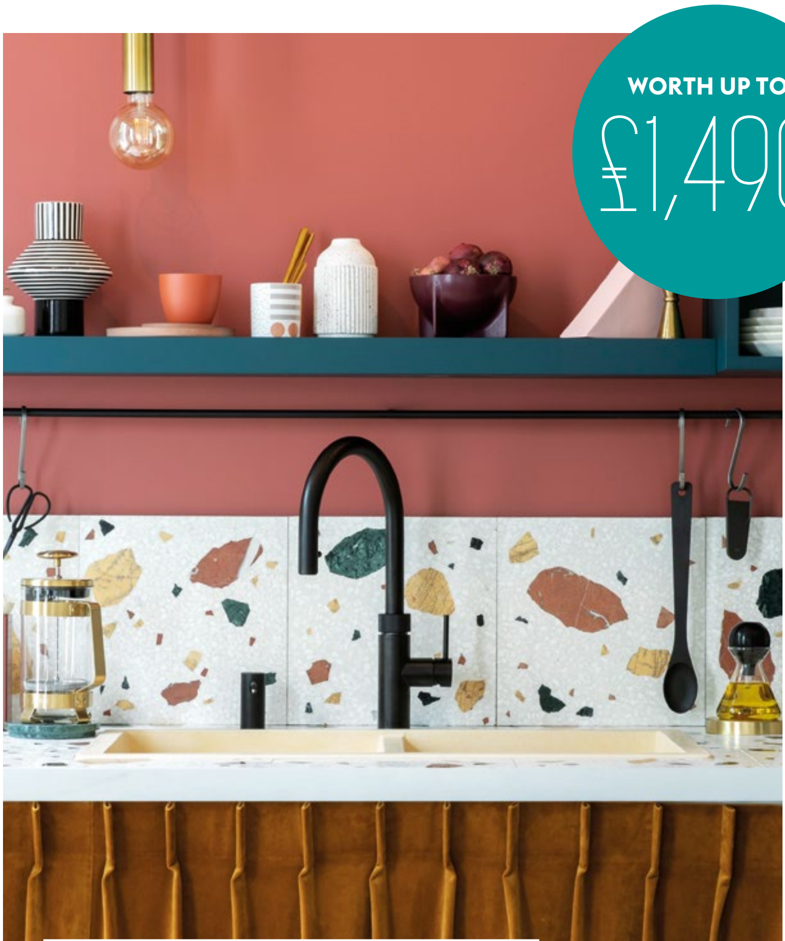


WORTH UP TO
£1,490!

TOP When on standby, a Quooker costs 3p per day. Quooker Flex in black, from £1,490

LEFT For the best taste, the water passes through an activated carbon filter. Quooker Flex in polished chrome, from £1,150

Eco walls and floors

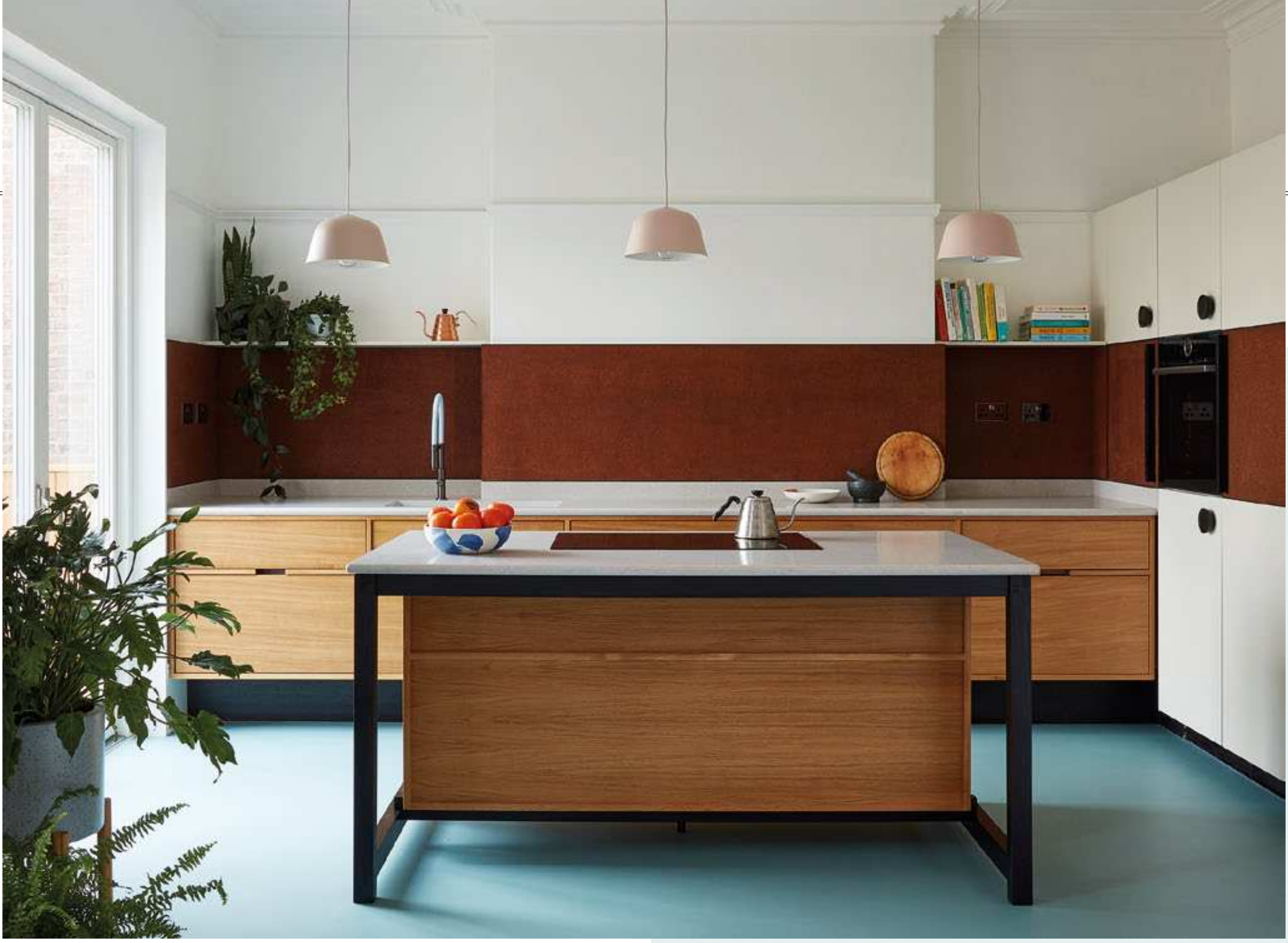
Ideas for designs that look great, perform well and are kind to the planet

WORDS **PAULA WOODS**

Pure and simple

Natural paint is made using ingredients such as clay and minerals. It is plastic-free, non-toxic, non-polluting and low-VOC. Try brands such as Edward Bulmer (edwardbulmerpaint.co.uk) and Graphenstone (graphenstone.co.uk).

Lime paint in Silversky, from £30 per litre, Bauwerk Colour (bauwerkcolour.co.uk)



Cut and come again

Cork is a renewable bark that can be made into tiles and planks for floors and walls. Naturally anti-microbial and soft underfoot, it also dampens sound and helps retain heat. When sealed, it needs little maintenance.

Bespoke stained oak kitchen with Caesarstone upstand (caesarstone.co.uk) and black stained cork wraparound panel, from £35,000, H Miller Bros (hmillerbros.co.uk)

Super sustainable

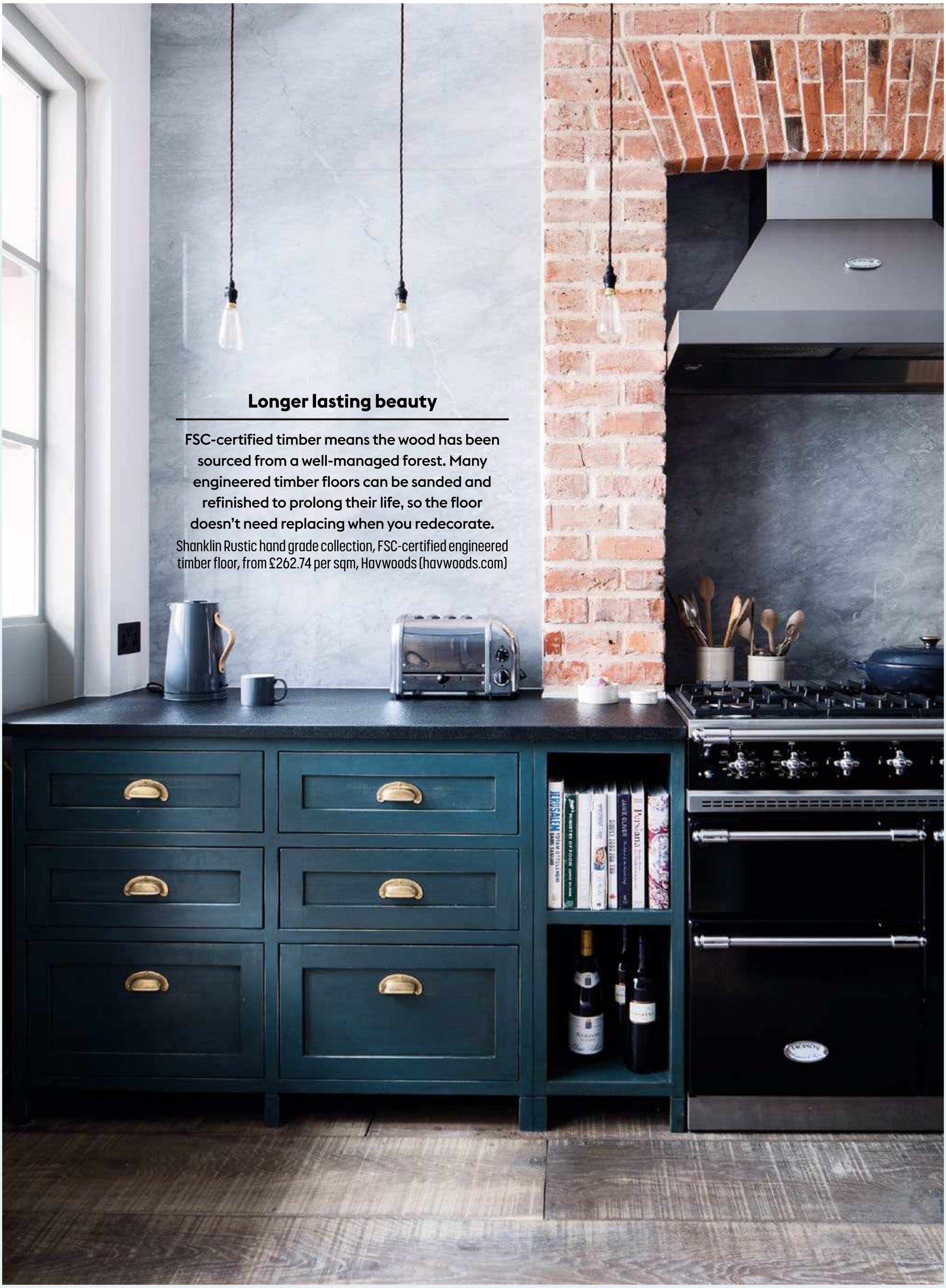
It may look like wood, but bamboo is a member of the grass family. It has minimal environmental impact as it regenerates every five years and regrows faster after being cut back.

Oxwich herringbone natural strand bamboo flooring, L450xW90xD12mm, £89 per sqm, Woodpecker Flooring (woodpeckerflooring.co.uk)

Chips off the old block

If you want to add the character of terrazzo surfaces to your scheme, look for products made with recycled timber scraps, stone or glass chippings, and a VOC-free resin binder.

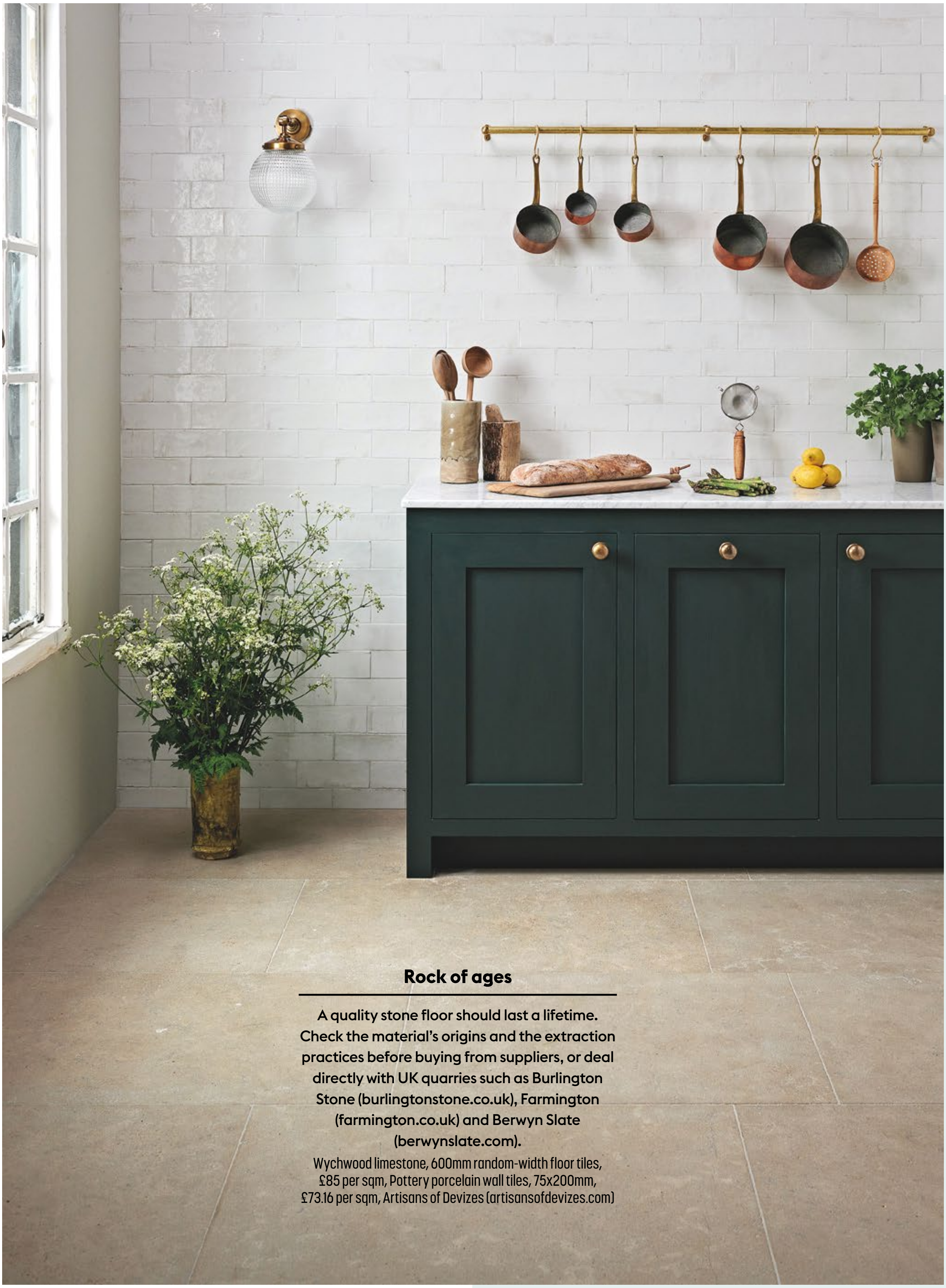
The London Collection FSC-certified timber terrazzo panels in Bianco Mono, from £450 per sqm, Foresso (foresso.co.uk). Project by Rise Design Studio (risedesignstudio.co.uk)



Longer lasting beauty

FSC-certified timber means the wood has been sourced from a well-managed forest. Many engineered timber floors can be sanded and refinished to prolong their life, so the floor doesn't need replacing when you redecorate.

Shanklin Rustic hand grade collection, FSC-certified engineered timber floor, from £262.74 per sqm, Havwoods (havwoods.com)



Rock of ages

A quality stone floor should last a lifetime. Check the material's origins and the extraction practices before buying from suppliers, or deal directly with UK quarries such as Burlington Stone (burlingtonstone.co.uk), Farmington (farmington.co.uk) and Berwyn Slate (berwynslate.com).

Wychwood limestone, 600mm random-width floor tiles, £85 per sqm, Pottery porcelain wall tiles, 75x200mm, £73.16 per sqm, Artisans of Devizes (artisansofdevizes.com)

From the earth

Clay plaster offers a beautiful depth of colour and texture. It is natural and non-toxic, and its moisture-absorbing properties help regulate humidity, making it ideal for kitchen walls and ceilings.

Smooth finish natural clay plaster in WH10, £20 per sqm, Clayworks (clay-works.com). Project by Magri Williams (magriwilliams.co.uk)

Made in the UK

Help to cut your carbon footprint by choosing handcrafted tiles made as close to home as possible using natural and sustainable materials.

Residence Manoir Mint Patchwork ceramic tiles, handmade in Devon, 129x129mm, £280.25 per sqm, The Winchester Tile Company (winchestertiles.com)

Magic formula

Made from linseed oil, wood flour, pine resin and environmentally responsible dyes, linoleum comes in a wide range of colours, is durable underfoot, and biodegradable.

Herringbone Marmoleum, £73.08 per sqm, plus bespoke handcutting service, Sinclair Till (sinclairtill.co.uk). Interior and kitchen design by Smith Creative (smithcreative.net)

Soft and strong

Water and slip-resistant rubber flooring is comfy to walk on, but avoid synthetic versions and choose biodegradable natural rubber that's also recyclable. 'Our rubber flooring is made using natural materials and carries eco certification,' says Lena Corner, director at The Colour Flooring Company (colourflooring.co.uk).

Rubber sheet flooring in Mildmay, with Blue Angel environmental certification, £63 per sqm, The Colour Flooring Company

Lifetime purpose

Smile Plastics (smile-plastics.com) uses 100 per cent recycled and recyclable waste plastic to make wall panels and work surfaces. It operates zero-waste production and a buy-back scheme for offcuts and end-of-life products.

Alba panels made from recycled yoghurt pots, from £120 for a 500x500mm, 5mm-thick splashback, Smile Plastics. Interior design by Indie & Co (indieandco.com)

Nothing wasted

Porcelain and ceramic tiles are hardwearing and low-maintenance. For ranges made with recycled material, try Alusid (alusid.co.uk) and Domus (domusgroup.com).

Tinte glazed ceramic matt and gloss wall tiles made from 47 per cent recycled ceramic waste, 250x50mm, £53 per sqm, CTD Architectural Tiles (ctdarchitecturaltiles.co.uk). Available via an architect or designer

PHOTOGRAPHY RORY GARDINER, NICHOLAS WORLEY

Great value

Replicate the appearance of timber or stone with eco-friendly lookalikes. Quick-Step laminate floors are made from residue found in the forestry and wood industry, and are Ecolabel-certified.

Signature brushed-oak natural water-resistant laminate flooring with glueless Uniclic fitting system, from £31.99 per sqm, Quick-Step (quick-step.co.uk)

READ THE SMALL PRINT

Eco labels explained by **Céline Erlam**, founder of interior design studio **Indie & Co** (indieandco.com)

● The EU Ecolabel (ec.europa.eu) is a guarantee of sustainability. It is awarded to products and services that meet high environmental standards throughout their lifecycle, from raw material extraction to production, distribution, use in the home and disposal.

● FSC (fsc.org) certification ensures that qualifying paper, wood and bamboo comes from sustainably managed forests. The PEFC (pefc.org) scheme endorses third-party certification – and covers rubber as well as wood products. Both international schemes have the same goals, so neither is better than the other, and some products carry both labels.

● Ask about products that come with an Environmental Product Declaration (EPD). This voluntary document is independently verified and registered, and provides information on the environmental impact a product will have over its lifecycle.

● To limit off-gassing and ensure good indoor air quality, look for designs with Greenguard certification. This guarantees low chemical and particle emissions, with Greenguard Gold being the highest standard. Alternatively, products that carry the M1 Emission Classification of Building Materials label do not emit any toxic substances and require no extra ventilation.

● Cradle to Cradle certification (c2ccertified.org) assesses the safety, circularity and responsibility of materials and products, rating them Basic, Bronze, Silver, Gold or Platinum.

● All of the schemes covered can also contribute towards gaining Breeam (breeam.com) or Leed (usgbc.org) green building status. Both operate a points system to assess the environmental, social and economic sustainability of a project.

STAR OF THE SHOW

Working together, Rylan and Wren Kitchens created a contemporary space around a standout island

When TV presenter Rylan Clark-Neal designed his contemporary home in Essex, he built the kitchen around one key element.

'I really wanted to have a showstopper island,' says Rylan, 33. 'I went through quite a lot of websites to find the right one, and then a fantastic design caught my attention.'

Once he had decided to make the marble Stealth island the room's focal point, Rylan began working with a Wren Kitchens designer to complete his vision.

'One of the things that I liked the most was when my family came to visit during the build,' he says. 'I had the virtual-reality version of my new kitchen on my phone. So when people asked me what it was going to be like, I could just hand them my phone and say, "Well, why not have a look for yourself?"'

As a keen amateur chef, Rylan needed to make sure that the kitchen was very practical as well as incredibly stylish.

> 'I really wanted a concrete look for my new kitchen because my house is quite industrial. There's a lot of stainless steel, grey and silver'

ABOVE A marble Stealth island gives Rylan's kitchen a striking focal point

LEFT The island has ample space for food preparation and cooking

ABOVE RIGHT State-of-the-art appliances include a Neff compact coffee centre in stainless steel

'I had a lovely lady called Michelle working with me,' he says. 'We sat down and went through all the designs. To be in the showroom and visualise what everything is going to look like in the house is great.'

The kitchen they designed together is from the Milano Elements range, and it has sharp lines and handleless units that complement the house's modern style.

'I wanted a concrete look for the new kitchen because my house is quite industrial,' he says. 'There's a lot of stainless steel, grey and silver. The Milano Elements collection was exactly what I was looking for.'

Rylan really enjoyed taking part in the design process, and was excited to watch it all come together.

'I went for Neff appliances,' he says. 'The Slide&Hide oven is great. I also chose a Miele dishwasher, which has a knock-to-open function. But my coffee machine is the one thing I couldn't live without.'

'My top tip for anyone buying a new kitchen is: don't sit online looking, actually go and see it. Go into the showroom, feel everything, touch everything, decide if you want gloss, matt, whatever, see the worksurfaces, feel the island, play with the appliances. For me, it was like being in a playground – but for adults.'

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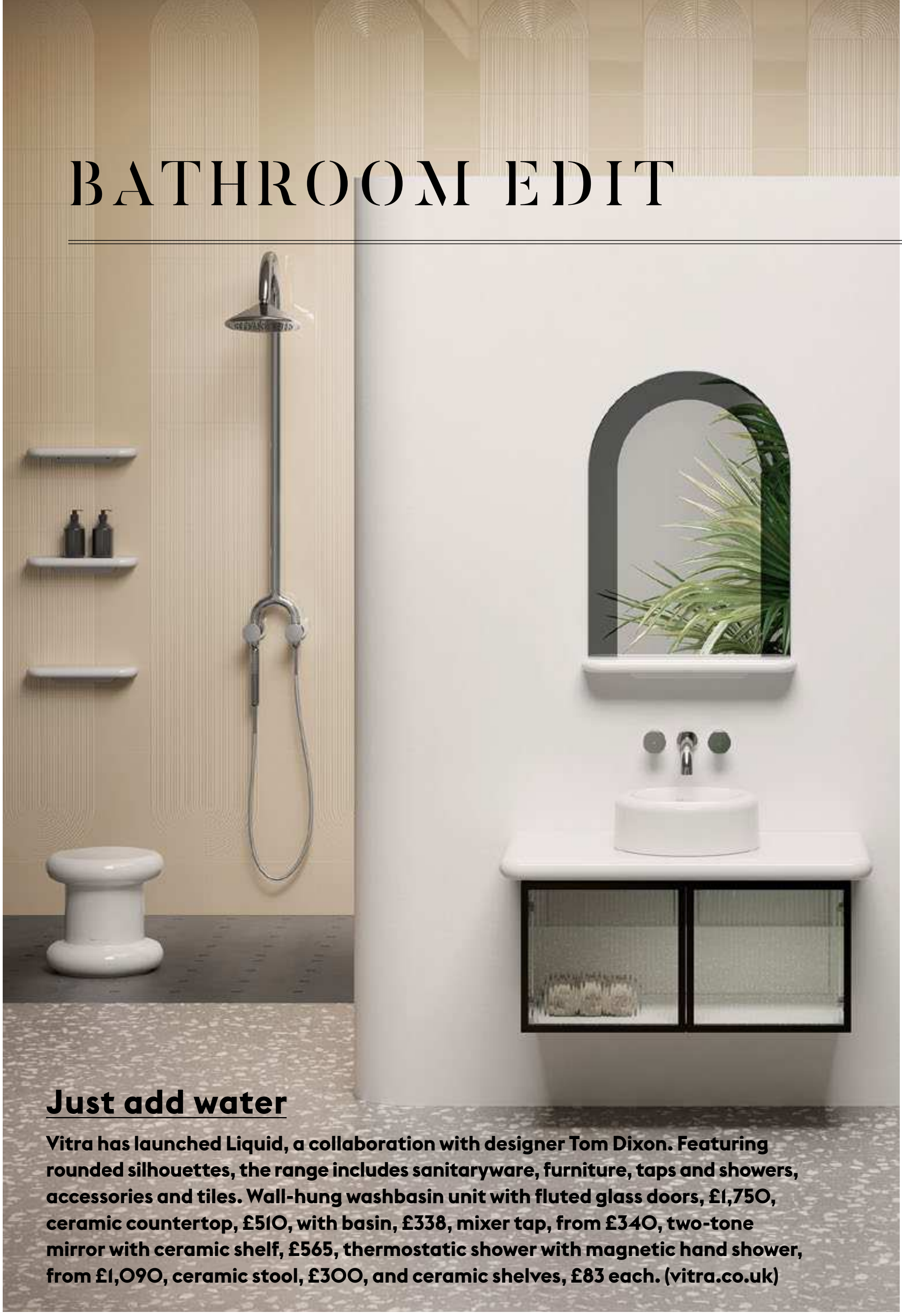


Just add water

Vitra has launched Liquid, a collaboration with designer Tom Dixon. Featuring rounded silhouettes, the range includes sanitaryware, furniture, taps and showers, accessories and tiles. Wall-hung washbasin unit with fluted glass doors, £1,750, ceramic countertop, £510, with basin, £338, mixer tap, from £340, two-tone mirror with ceramic shelf, £565, thermostatic shower with magnetic hand shower, from £1,090, ceramic stool, £300, and ceramic shelves, £83 each. (vitra.co.uk)

Solid choice

Joanna Alden creates concrete homeware for her brand Conk. Each piece is handmixed, poured and sanded, and has an eco-friendly coating. Seconds are discounted to reduce waste, and bespoke designs are available on request. Small utensil holder, Dia75xH75mm, £12.50, and oval tray, L180xW95xD10mm, £14. (conkco.co.uk)

A space-saving solution

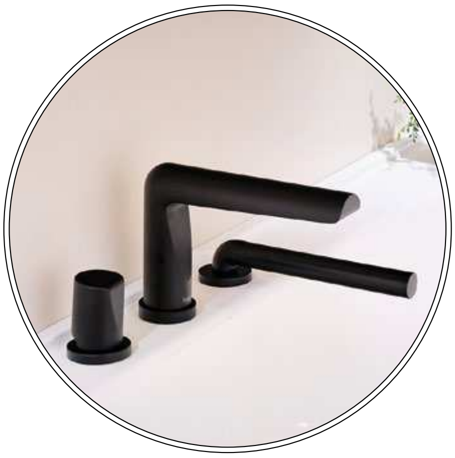
Inspired by the ladders found in artisan workshops at the start of the 20th century, the Elio metal towel rack with integrated Dia500mm mirror provides a stylish storage solution for small bathrooms. Part of online store Tikamoon's industrial-inspired furniture range, the black-painted ladder measures H1,790xW710xD160mm and has a rung spacing of around 250mm. It costs £239. (tikamoon.co.uk)

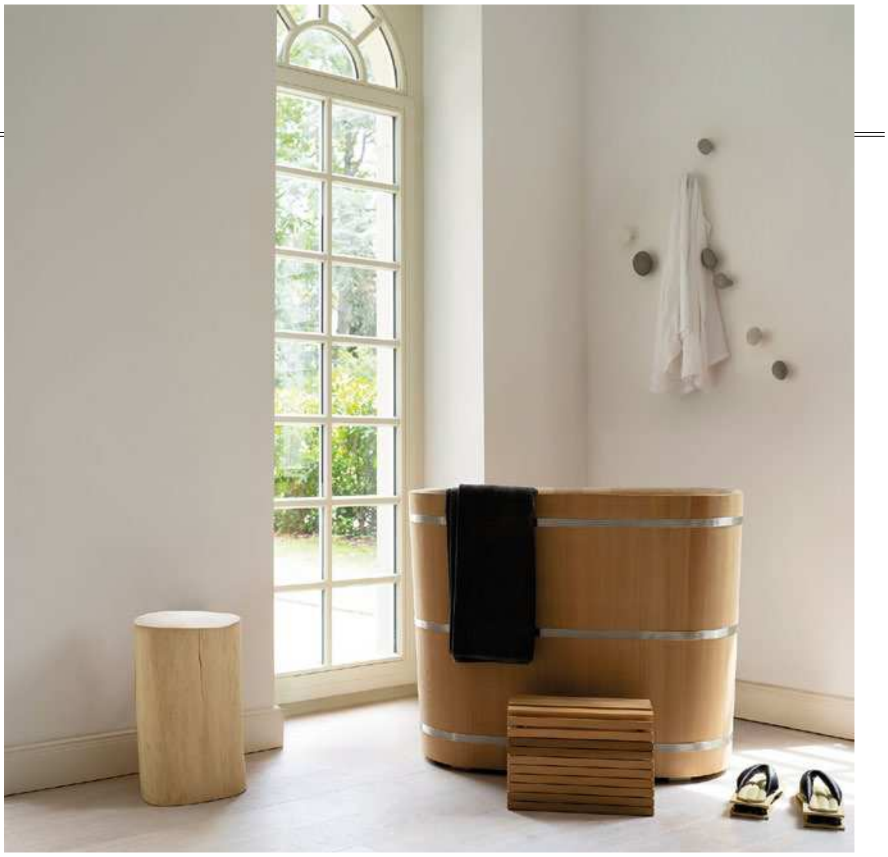
Quick change

Aqualisa's Quartz Smart Retrofit shower will transform exposed shower fittings into an app- or voice-activated digital system. Simply replace an existing valve with the integrated shelf and smart control. The back plate covers any exposed screw holes, and an extension rail provides height adjustments. Prices for the Google- and Alexa-compatible kits start from around £671. (aqualisa.co.uk) ››

Awash with style

New to the UK, Canadian brand Riobel specialises in contemporary luxury brassware characterised by geometric shapes and interesting angles. The Parabola collection of taps, shower valves and accessories takes its inspiration from 1960s styles, but with updated softened edges and rounded corners. Available in chrome, brushed gold, polished nickel or matt black, this deck-mounted bath/shower mixer costs from £838.50. (riobelmodern.com)





Take the plunge

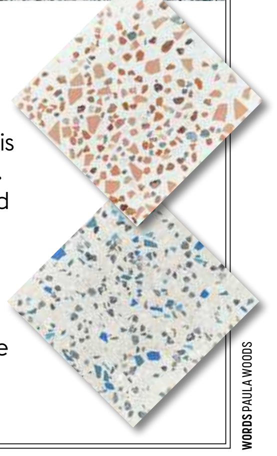
The Ofuro is a handcrafted Japanese-style tub made from untreated cedar wood. Its shape allows you to sit upright in deep water for a relaxing soak. The bath is raised on small feet and available in two sizes from retailer Indigenous. The W980xD660xH770mm tub costs £7,880, and the bigger W1,270xD660x H770mm model is £9,040. (indigenous.co.uk)

Lower flow

The Vernis taps and showers by Phoenix Design for Hansgrohe include water-saving features. The rounded Vernis Blend and more geometric Vernis Shape mixers come in chrome or matt black with EcoSmart technology to reduce water consumption by up to 60 per cent. The AirPower showers use 6 litres of water per minute. Vernis Blend Showerpipe 200 1jet with thermostat, from £548.33, and single lever tap, from £95.83. (hansgrohe.co.uk)

One of a kind

Durable and easy to maintain, Bert & May's handcrafted Terrazzo Tile can be used on all surfaces and is compatible with underfloor heating. Made from a combination of ground minerals, such as marble, granite and quartz, each 400x400mm tile is unique and can be used as an all-over design or teamed with the brand's other tile ranges. Choose from Rose, Coarse, Ebony, Fennel or Azure, £42 each. (bertandmay.com)



WORDS PAULA WOODS

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Ways to increase light and space to create a room that's practical and a joy to spend time in

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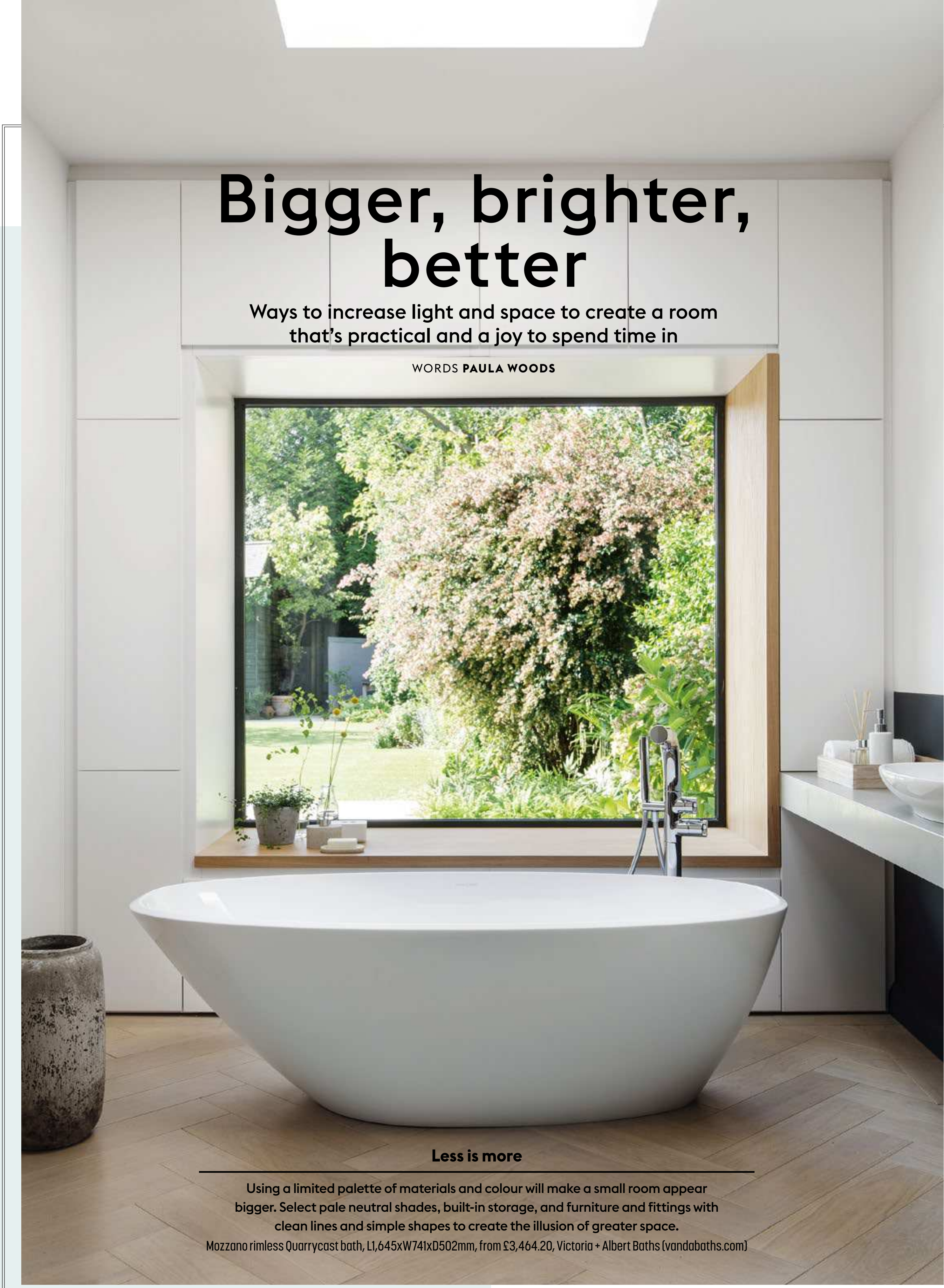


Less is more

Using a limited palette of materials and colour will make a small room appear bigger. Select pale neutral shades, built-in storage, and furniture and fittings with clean lines and simple shapes to create the illusion of greater space.

Mozzano rimless Quarrycast bath, L1,645xW741xD502mm, from £3,464.20, Victoria + Albert Baths (vandabaths.com)

Expansion project

Increase the room's dimensions by taking space from an adjacent corridor, cupboard or room. Seek advice from an architect or designer, and if the work involves removing a loadbearing wall consult a structural engineer via The Institution of Structural Engineers (istructe.org).

A cupboard was knocked through to create a shower for this scheme, £9,500, West One Bathrooms (westonebathrooms.com)

Fix the footprint

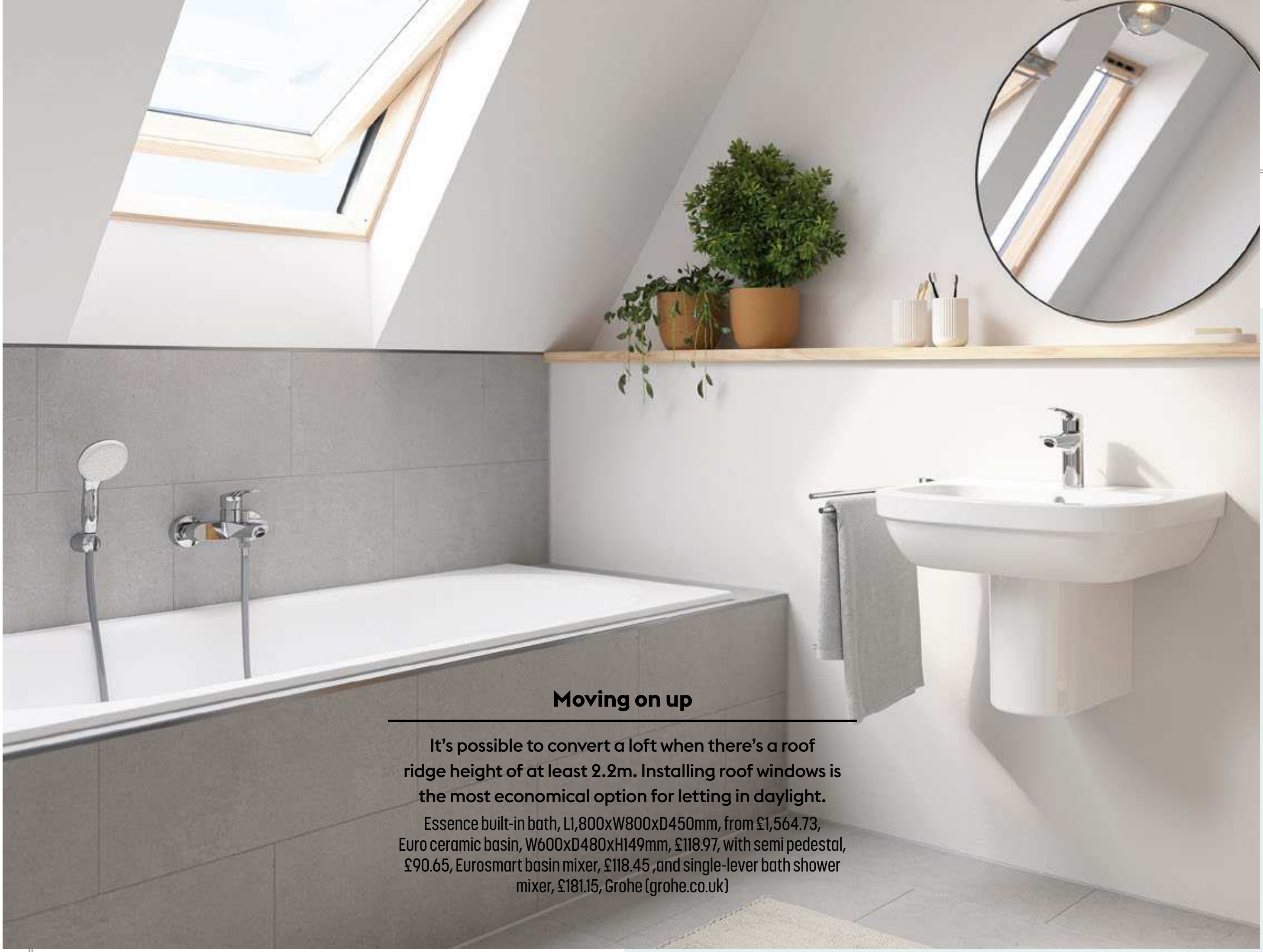
Reworking architectural features or opting for a more inventive design may be the key to transforming a space. Consider whether a doorway or window can be moved to free up a wall for fittings and furniture.

Reconfigured layout and interior design, £POA, Louise Bradley (louisebradley.co.uk)

High ideals

A loft conversion with dormer or mansard windows provides additional space and headroom. Visit the RIBA website (architecture.com) to find a local architect who can advise.

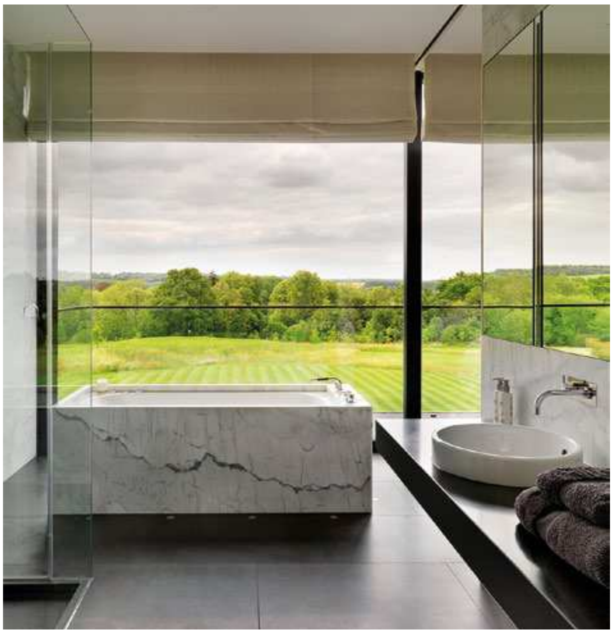
Project management and interior design, £70,000, Sarah Southwell Design (sarahsouthwelldesign.com). Bath, from £4,800, Witt & Berg (wittandberg.com). Basin, £395, Lusso (lussostone.com). Tiles, £165 per sqm, Bert & May (bertandmay.com)



Moving on up

It's possible to convert a loft when there's a roof ridge height of at least 2.2m. Installing roof windows is the most economical option for letting in daylight.

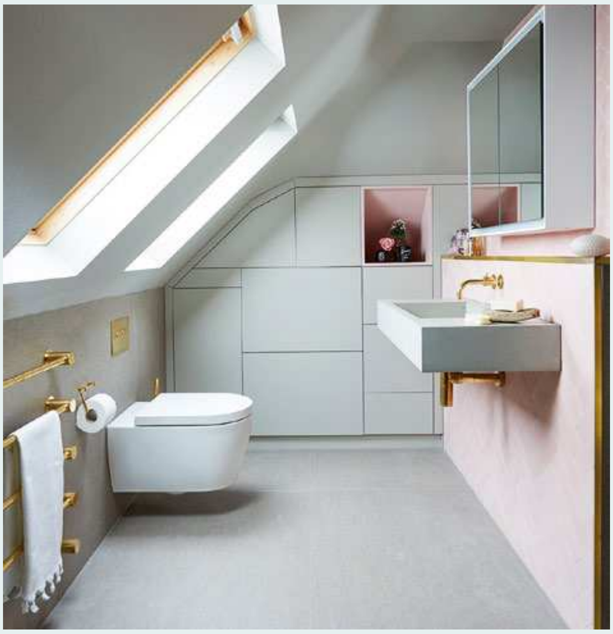
Essence built-in bath, L1,800xW800xD450mm, from £1,564.73, Euro ceramic basin, W600xD480xH149mm, £118.97, with semi pedestal, £90.65, Eurosmart basin mixer, £118.45 ,and single-lever bath shower mixer, £181.15, Grohe (grohe.co.uk)



Work the windows

Improve a room's outlook, light levels and sense of space with slim-framed or frameless glazing. It may be possible to enlarge the original openings – ask an architect for advice. Opt for opaque or mirrored glass for privacy.

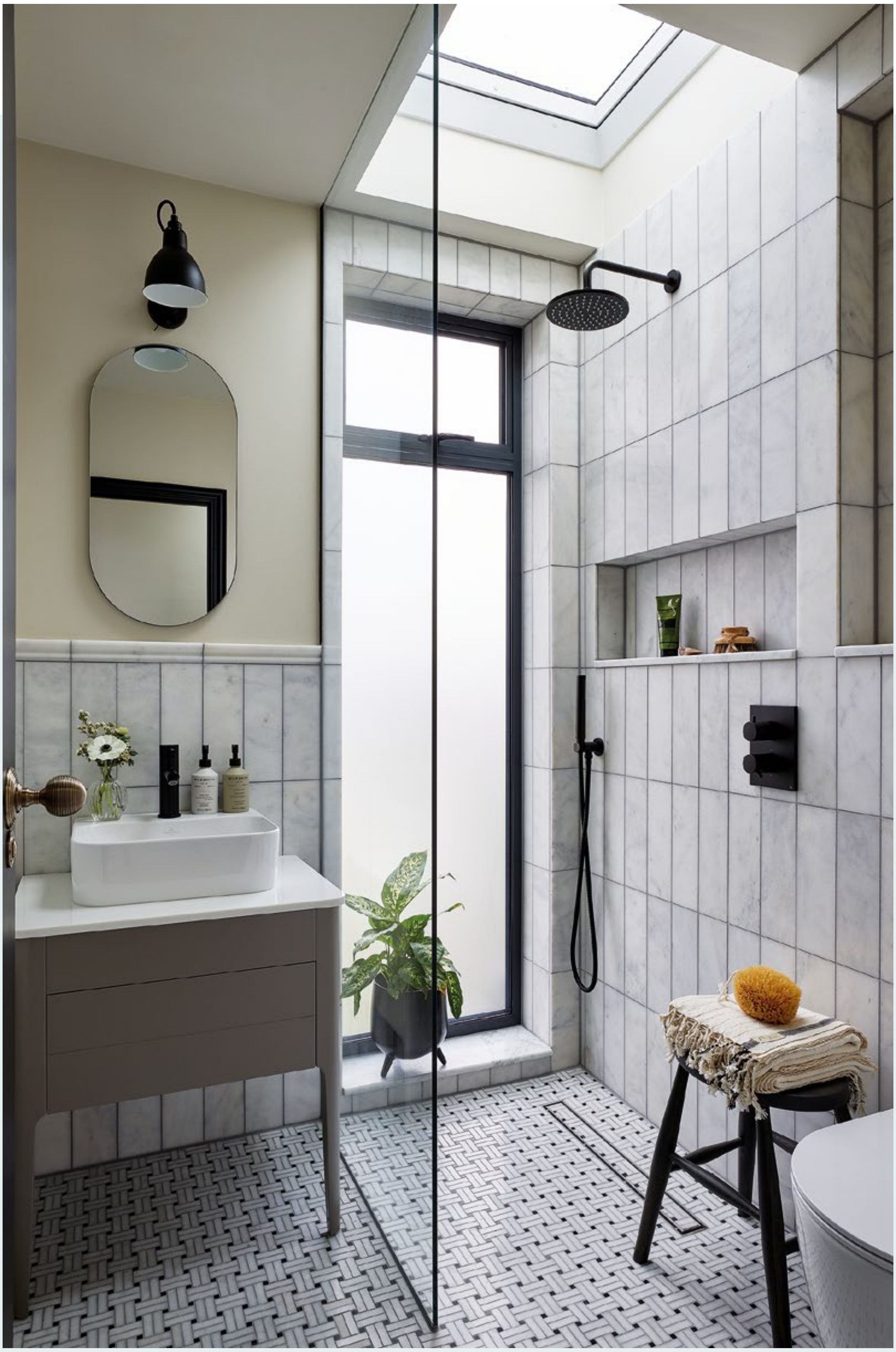
This scheme is part of a new-build home by Gregory Phillips Architects. A similar refurbishment project would cost around £100,000. (gregoryphillips.com)



Hide it all

A wall of built-in cupboards with handleless doors painted the same colour as the walls takes up a small amount of floor area, and it appears to recede into the background while providing plenty of storage for towels and toiletries.

Interior design by Lisa Burke Interiors (lisaburkeinteriors.com). Sensi porcelain tiles, from £78 per sqm, Domus (domusgroup.com)



A boost from above

If it's possible to fit overhead glazing, it's worth considering for the amount of light it will bring in. Often this will be more than vertical windows of a similar size. Alternatively, it may be possible to fit a sun tunnel – try Velux (velux.co.uk).

Interior design by Justin Coakley of Design at Nineteen. Long Island Marble Wicker mosaic tiles, £180 per sqm, Long Island Marble brick tiles, £89 per sqm, and dado tiles, £13 each, Ca'Pietra (capietra.com)

CLEAR THINKING

Glazing advice from **Ryan Schofield**, MD of **Thames Valley Window Company** (tvwindows.com)

- Installing rooflights can often be carried out under permitted development (PD), as long as they don't protrude beyond the plane of the roof by more than 150mm. Planning approval may be needed when adding or enlarging windows. For more information, visit planningportal.co.uk. All installations must adhere to Building Regulations, including those that relate to energy efficiency.
- The Window Energy Rating (WER) indicates the energy efficiency of an entire window or rooflight including the frame. The rating is based on a scale of E to A++, with A++ being the most efficient. The minimum legal rating is C.
- U-values measure the energy efficiency of the glazing. This must be double glazed and have a minimum U-value of 1.6 W/m2K. However, the lower the U-value, the better the insulation, so consider triple glazing.
- Enlarging or adding a window involves removing brickwork and installing a calculated lintel for structural support. Bigger expanses will require the services of a qualified structural engineer.
- Installing smaller fixed skylights within a pitched or flat roof involves removing the necessary roof timbers before reinforcing the new opening and creating a framework. Whereas larger expanses of overhead glazing may require the roof to be replaced or at the very least reinforced with additional joists or steel. A structural engineer can advise on calculations and the suitability of a design.
- Employing a Fensa-registered installer (fensa.org.uk) will ensure that all work is carried out correctly, complies with current Building Regulations, is registered with the local council and backed by a comprehensive guarantee.

The big switch

Why not turn a boxy bathroom into a multipurpose bedroom/office and a bigger bedroom into a luxurious bathroom? Converting adjoining rooms may allow you to make use of the existing plumbing system, saving disruption and money.

Interior design by Wells and Maguire (wellsandmaguire.com). Coniston bath, L1,790xW870xD5235mm, £4,588, Duravit Luv vanity unit, W1,733xD570xH743mm, £5,288, Cielo Shui Comfort oval basin, W600xD380xH125mm, £589, Crosswater MPRO bath shower mixer, £999, basin mixer, £249, CP Hart (cphart.co.uk)

Add extra height

Taking the ceiling up to the rafters in a compact loft or top floor room will make it feel more spacious. Services may need to be relayed and the vaulted ceiling will need to be adequately insulated.

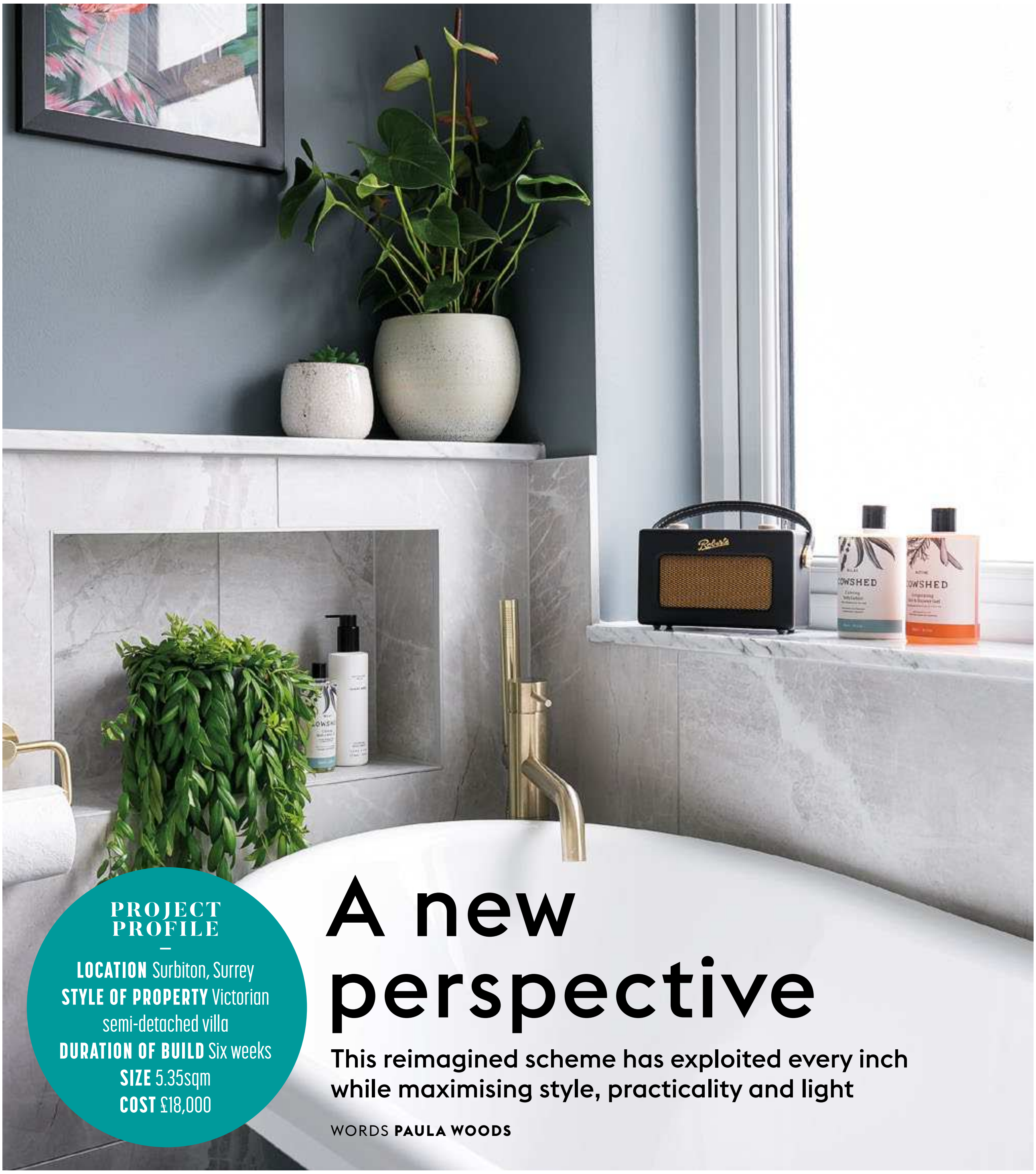
Refurbished and extended Victorian home, including bathroom with vaulted ceiling, restored fireplace and new rooflight, £POA, Fraher & Finley (fraherandfindlay.com)

Out of the shadows

Design your lighting scheme to ensure there are no dark corners or shadowy recesses. The aim is to create an even level of brightness throughout the room by incorporating a combination of task, accent and ambient fittings.

Mashiko 360 Classic dimmable IP44-rated wall light in matt gold, H360xW80xD80mm, £224, Astro Lighting (astrolighting.com)

PHOTOGRAPHY PAUL CRAIG, PAUL RAESIDE, ADAM SCOTT



A new perspective

This reimagined scheme has exploited every inch while maximising style, practicality and light

WORDS **PAULA WOODS**

PROJECT PROFILE

LOCATION Surbiton, Surrey
STYLE OF PROPERTY Victorian semi-detached villa
DURATION OF BUILD Six weeks
SIZE 5.35sqm
COST £18,000

ABOVE Marble-effect tiles are teamed with a deep blue wall colour. Marbleous Porcelain Perla tiles, £55.36 per sqm, Ca'Pietra (capietra.com). Walls in De Nimes, £49.50 per 2.5 litres, Farrow & Ball (farrow-ball.com)

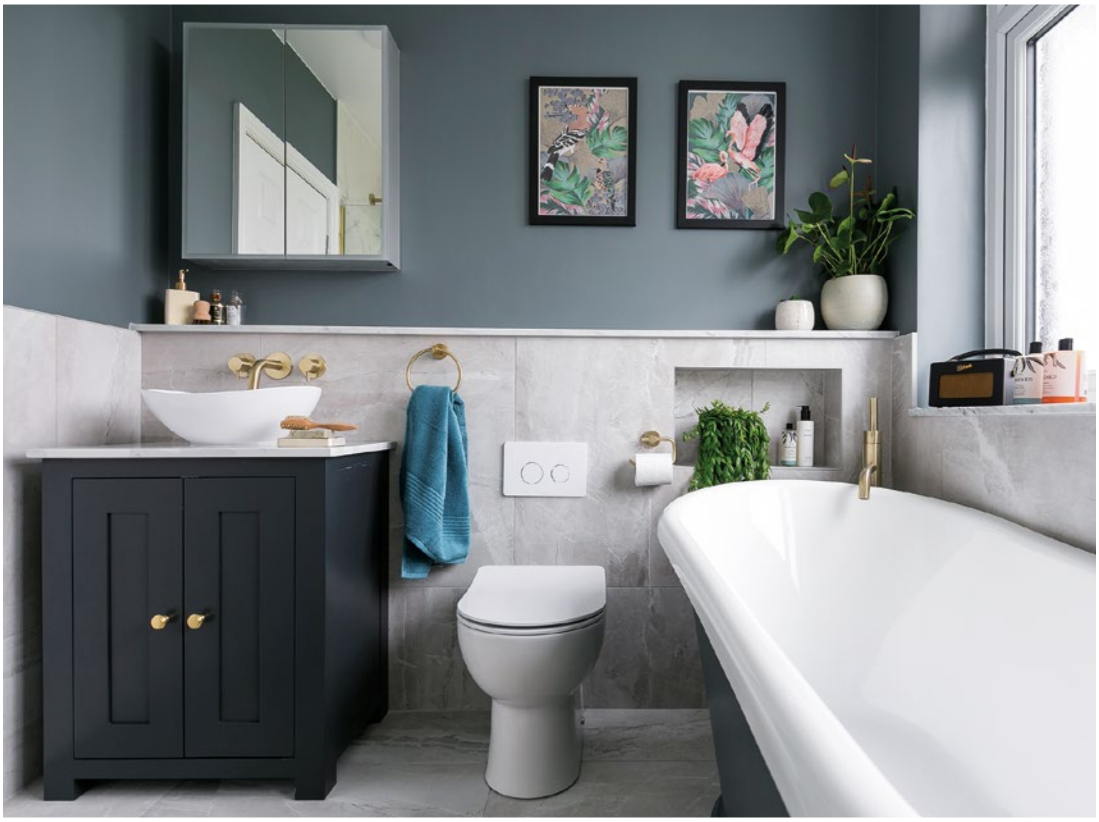
PHOTOGRAPHY SIMPLY BATHROOMS

Having both a walk-in shower and freestanding bath was a priority for Lucy and Simon Zaremba when they came to update the main bathroom in their four-bedroom home in Surbiton. But with no possibility of extending, and only a modest 5.35sqm of floorspace to fit everything into, they asked Neil Harrold, the director of Simply Bathrooms (simplybathroomsltd.co.uk), for ideas.

Neil suggested moving the doorway. 'Repositioning the door to the middle of the wall made space for a vanity unit and loo along one side of the room and a walk-in shower on the other, with a freestanding bath opposite the door beneath the window,' he explains.

A new half-height stud wall behind the vanity unit and back-to-wall loo conceals the plumbing pipework and compact cistern. 'The wall also gave us the opportunity to create a storage niche for toiletries, which supplements the shelf above,' Neil adds.

On the opposite side of the room, the shower area was tanked and a space-saving, bi-folding screen fitted – it folds out of the way when not in use. 'The shower wall is covered in bookmatched marble-effect »



LEFT The freestanding tub is 1,700mm long. Acrylic Boat bath, £1,761.80, BC Designs (bcdesigns.co.uk). Vos floorstanding mixer, £950, Just Taps Plus (jtpuk.co.uk). Air rimless loo, £119, Saneux (saneux.com). Bespoke vanity unit, Simply Bathrooms (simplybathrooms ltd.co.uk)

BELOW A wet room area is a space-saving alternative to an enclosure. Bespoke bi-fold screen, The Shower Lab (theshowerlab.com). VOS shower valve with handset, £660, shower arm, £99, and head, £199, Just Taps Plus. Marbleous Porcelain Epic tiles, £202.12 per sqm, Ca'Pietra (capietra.com)

The heated towel rail is in a brushed brass finish to match the other fittings and accessories. VOS radiator, £445, Just Taps Plus

porcelain tiles,' says Neil. These are complemented by paler grey marble-effect floor and wall tiles.

What could have been wasted space between the bath end and shower wall has been put to good use with the addition of a slim heated towel rail.

As the room gets plenty of natural light, Neil suggested using darker shades on the side of the bath, the vanity unit and the upper half of the walls. 'We selected similar colours that go well together to add depth to the scheme,' he says.

It's a practical room that successfully balances classic and modern styles. Although there is no space left unused, the overall effect is calm rather than cluttered. 'Neil has worked miracles to incorporate all the pieces we'd expect in a much bigger room, but there's still enough empty floorspace for us,' says Lucy. 'We particularly like how the scheme puts the bath centre stage.' GD

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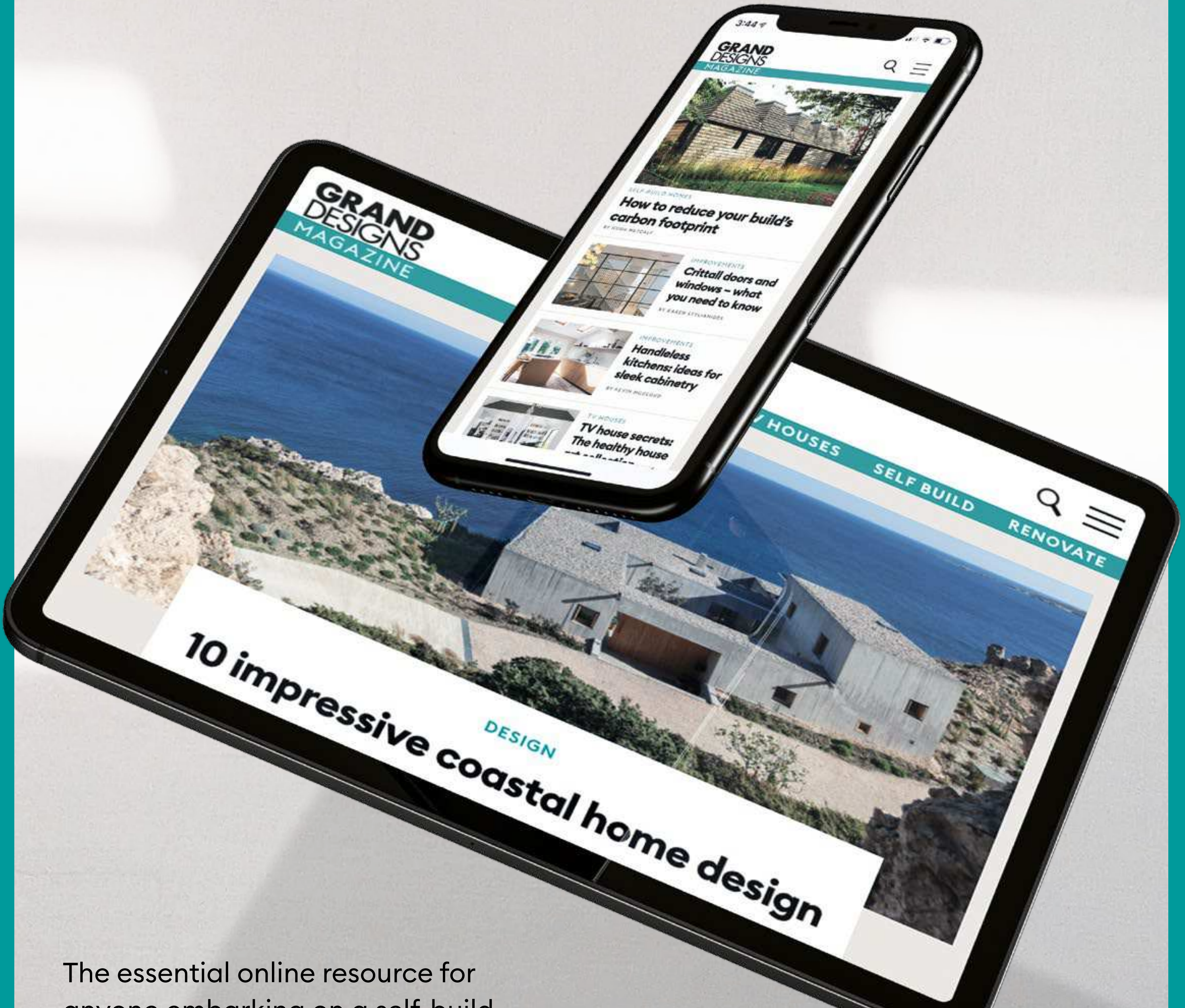
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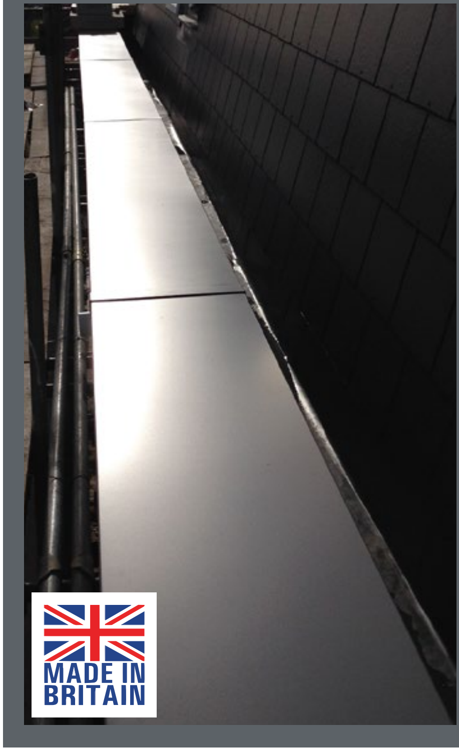

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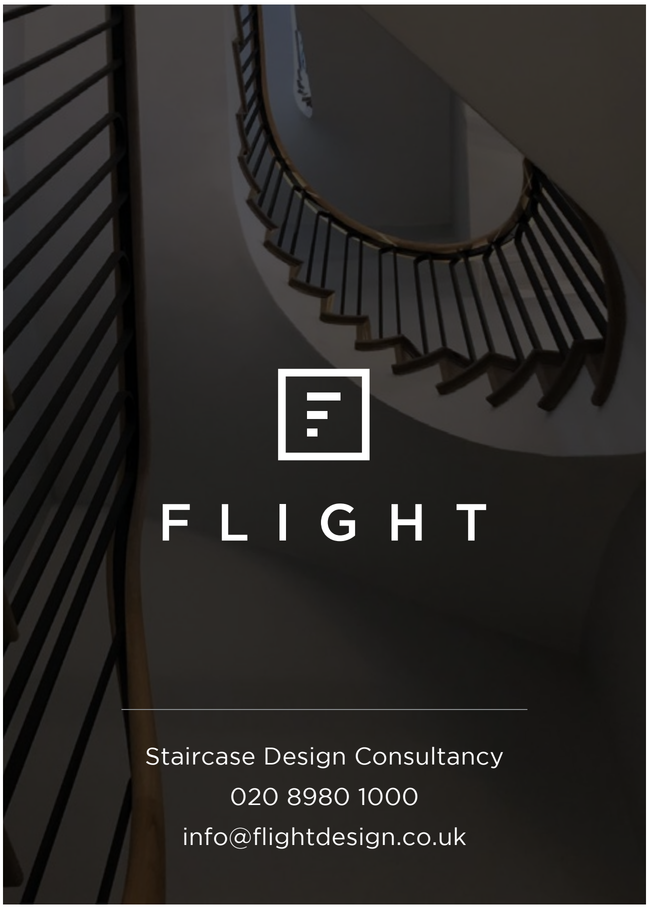
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MY GRAND IDEA

—

In a forest in the Czech Republic, architect Lina Bellovičová built an experimental low-carbon house using hempcrete

Why did you build this house?
The client was my boyfriend – now my husband – Ondřej Koníček, who owned a site in the middle of a forest in Buchlovice, near Smrad'avka, Czech Republic. He always dreamed about building a cabin to use as a winter retreat and photographic studio, and asked me to design it. He didn't want to use any synthetic materials, so he suggested hempcrete, which was an experimental choice as it has never before been used to build a house in the Czech Republic.

— What is hempcrete?
It is a wet mixture of lime and hemp shiv – the chopped up, woody core of the hemp plant.

— What are its advantages?
Hempcrete is different from eco-friendly building materials such as clay and straw as it petrifies over time, drawing carbon dioxide from the surrounding air and setting like stone. It is also resistant to pests, fire and mould, and is breathable, recyclable and highly insulating, locking away more carbon than is emitted during the building process.

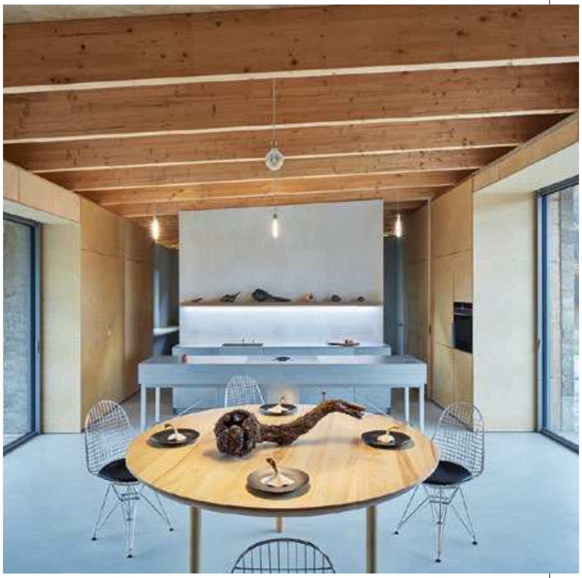
— Tell us about the build
Hempcrete is not loadbearing, so we had a team of carpenters to construct a timber frame. Then Ondřej and I created the walls by adding multiple layers of hempcrete inside a temporary wooden shuttering system. The mixture feels like wet snow to start with, but by the end of the day it dries like concrete and the interior surfaces don't need to be insulated or plastered.

— How did using hempcrete affect the design of the house?
It was all based around the properties of the material. I designed it as a single-storey structure with basement because it was a prototype, but if you have a timber frame there's nothing to stop you building a two-storey home along the same principles.

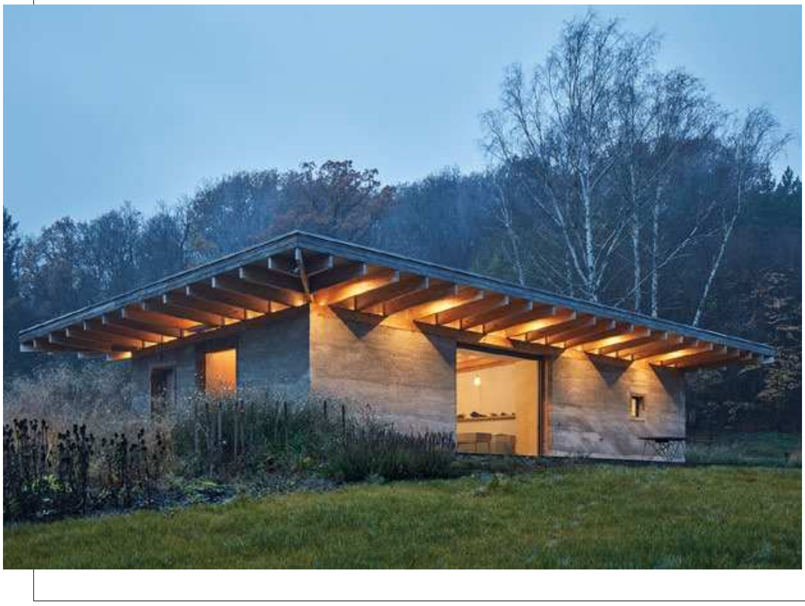
— Did you encounter any problems along the way?
Yes, there were many issues because we had no previous experience of working with hempcrete, but we overcame all the challenges. We discovered that it was important to use the same pressure during compaction, to get exactly the right ratio of mixed ingredients, and to work quite quickly. Our biggest problem was that the delivery of the windows and doors was delayed, meaning we had to leave openings instead of making the layers continuous, filling in the gaps later. This led to problems because small amounts of hempcrete don't hold together as well as larger expanses, but we accepted there was no alternative as we were aiming to get finished before winter. Ondřej is gradually putting things right.

— How do you feel about the finished house?
Ondřej is happy with the way that the house blends so perfectly with its surroundings, and we love it so much that we now live here full-time with our two children. GD

Ateliér Lina Bellovičová, linabellovicova.cz



ABOVE The building has two bedrooms and an open-plan living space on the ground floor, with a photographic studio in the basement



LEFT A green roof with a broad overhang forms a protected terrace. The build cost was around £200,000

WORDS ALICE WESTGATE PHOTOGRAPHY BOYSPLAYNICE

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FROM THE PUBLISHERS OF

GRANDDESIGNS **GoodHomes**

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Sustainable approach

Enjoy the perfect indoor temperature and reduce your home's energy use

Feature **CAROLINE RODRIGUES**

We are facing a challenge. Climate change demands that we adapt many of our habits to live more sustainably, while at the same time the financial and environmental costs of heating our homes increases every year. The government's response is the proposed Future Homes Standard, to be introduced by 2025, which will require new-build homes to be futureproofed with low-carbon heating and improved levels of energy efficiency. Meanwhile, there is plenty that we can do now to cut back or even eliminate our home's reliance on fossil fuels.

ABOVE & LEFT The building envelope of this self-build is insulated with recycled newspaper, so the house requires relatively little heating to keep it cosy. Heating is provided by a Daikin air-source heat pump, which also powers the underfloor heating. The woodburner is used occasionally for backup warmth in the winter

Self-build solutions

When building a new home, all the energy-saving elements must be considered and balanced from the beginning of the project. The gold standard for this is the Passivhaus method, in which high levels of insulation and airtightness result in a home that will need little or no space heating at all. But buildings that do not have Passivhaus accreditation can still be highly efficient. Making financial decisions on whether it's worth spending more on high levels of airtightness and upgrading from double to triple-glazed windows to achieve lower running costs can be done by comparing prices and performance details from suppliers, and taking advice from your architect or an energy consultant. When considering pay-back times, assess both the projected lifespan of the building and how long you intend to live there.

Build efficiency

Achieving a building that's as airtight as possible is down to the quality of workmanship as much as the materials chosen. Prefabricated build systems have an advantage in that the main components are put together under rigorous factory conditions. When good levels of airtightness are achieved, the project could include a mechanical ventilation with heat

TOP Photovoltaic solar panels and an air-source heat pump supply the energy and heating for this timber-framed and insulated family home in Scotland. To help it gain Passivhaus status, architect Kirsty Maguire (kirstymaguire.com) used triple-glazed Progression windows and Ultra doors from Green Building Store. (greenbuildingstore.co.uk)

ABOVE This farmhouse in south Derbyshire was designed to Passivhaus Plus standard by Justin Smith Architects (justinsmitharchitects.co.uk). Its owner chose a ground-source heat pump to supply the heating system. Two 50m-long slinky coils buried under the field to the west of the house are laid in parallel trenches spaced 10m apart. The house has underfloor heating on the ground floor, towel radiators in the bathrooms, plus an MVHR. (marshflattsfarm.org.uk)

recovery (MVHR) system. This maintains a flow of filtered air through the house, recovering heat from the moist, stale air inside and transferring the warmth to air drawn in from outside.

Retrofit success

For anyone taking on a refurbishment, whether or not this includes an extension or loft conversion, energy efficiency is of great importance. 'Period properties represent a huge portion of the UK's housing stock, so it's critical that planners, architects and builders define appropriate methods to tackle them,' says Kit Knowles, director of Ecospheric (ecospheric.co.uk). Just as with a new-build, insulation, airtightness and renewables all come into consideration. The ultimate standard is Enerphit, issued by the Passive House Institute (passivehouse.com) for retrofit projects.

Spread the warmth

Conventional radiators rely on convection currents to warm the air, but there are more efficient ways of distributing heat, such as underfloor heating or infrared panels. Infrared warms you, and other objects, using radiant heat. The panels heat quickly and some types can be hidden behind a plaster skim. If you are drawn to the traditional appeal of a woodburning stove, choose one that is SIA Ecodesign Ready, which will meet the new regulations for lower emissions, coming into effect in 2022. For radiators suitable for using with air-source heat pumps, see page 14, and eco woodburners can be found on page 27.

PHOTOGRAPHY DARREN CHUNG, DAVID BARBOUR, SKYLINE PICTURES

TOP A 400-year-old home in Surrey has been retrofitted with renewable energy and heating. Two 60m-deep boreholes were drilled into the rear garden for the Danfoss ground-source heat pump (danfoss.com). It supplies hot water to the 21 Jaga Strada DBE radiators (jaga.co.uk). A 4kW, ground-mounted photovoltaic solar panel provides some of the electricity needed to drive the pump and compressor

ABOVE This bathroom has a wall-mounted mirror-finish infrared panel. The radiant heat of an infrared panel directly warms the walls, floor and ceiling, which then retain the warmth, effectively turning a room into a radiator. Select XLS mirror infrared panel, from £225, Herschel. (herschel-infrared.co.uk)

SEEKING FURTHER ADVICE

These organisations offer useful guidance on eco building, heat generation and distribution

- The Energy Saving Trust gives impartial advice on renewables, insulation and efficiency. (energysavingtrust.org.uk)
- The Glass and Glazing Federation has a spin-off website, myglazing.com, with advice and an energy-saving calculator. (ggf.org.uk)
- Green Building Store offers products and support for energy-efficient homes and buildings. (greenbuildingstore.co.uk)
- GreenSpec is a useful source of information and design ideas curated by architects. (greenspec.co.uk)
- The Heat Pump Association is a source of technical information and case studies, with details of manufacturers and installers. (heatpumps.org.uk)
- Hetas has a competent person scheme for installers of biomass and solid-fuel heating. (hetas.co.uk)
- The National Insulation Association has information, lists of installers and examples of energy-saving costs. (nia-uk.org)
- Ofgem explains the government's energy schemes. (ofgem.gov.uk)
- The Passivhaus Trust offers information and guidance on building to ultra-efficient standards. (passivhaustrust.org.uk)
- Solar Energy UK is a specialist in solar heat, solar power and battery storage. (solarenergyuk.org)
- The Wood Heat Association explains biomass heating and lists reputable biomass boiler and stove installers. (woodheatassociation.org.uk)
- YouGen has advice on energy saving and renewables. (yougen.co.uk)

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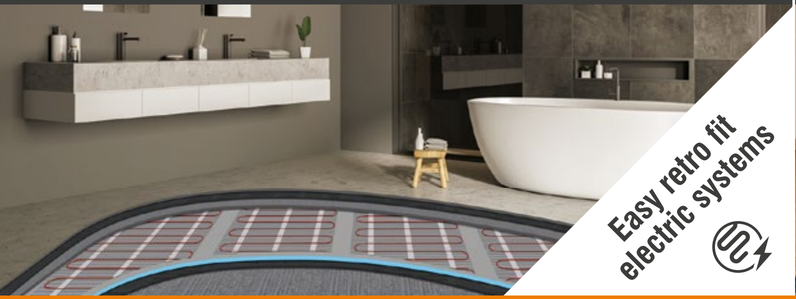
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A cosy atmosphere

How to take warmth from fresh air and use it to heat your home

Feature **REBECCA FOSTER**

ABOVE Architects Brown & Brown (brownandbrownarchitects.com) refurbished a cottage and byre in Aberdeenshire, Scotland. The practice added 150mm-deep insulation to the inside of the stone walls and repointed the outside

Powered by electricity, an air-source heat pump (ASHP) extracts warmth from the air, and increases the temperature to supply a home's heating and hot water. ASHPs come in two types – air to air and air to water. The latter is more common in the UK and the subject of this guide. Air-to-water systems include a fan unit containing a special coil. Warmth in the air is absorbed by fluid inside the coil, which passes through a compressor to increase its temperature. The heat is then transferred to a water-based heating system for radiators, underfloor heating (UFH) and the hot water supply.

Air-to-air heat pumps run like air-conditioning units in reverse. The circulation system heats the air, but does not supply hot water.

Thermal efficiency matters

An ASHP can be fitted relatively easily as part of a self-build or home-improvement project. The system works particularly well with UFH because it produces a low flow temperature, ideally 30°C to 35°C. This is cooler than a conventional radiator set-up, which runs at around 60°C to 80°C. Installing an ASHP may involve changing your radiators for more compatible models.

A home needs to have good levels of airtightness and insulation to ensure the warmth generated by the pump is retained. 'Air-source heat pumps can warm any size of home, but it is important to make the building thermally

ABOVE AND RIGHT The byre extension of the Brown & Brown-refurbished home (see previous page) was stripped back, insulated inside and over-clad outside. A Mitsubishi Ecodan 8.5kw air-source heat pump with a 250l hot water cylinder supplements the solar gain from the glazing. The total estimated running cost of the heating and hot water is £1,000 per year, offset by an estimated Renewable Heat Incentive (RHI) payment of £1,462 per year

efficient before installation to ensure the capacity of the appliance is as small as possible, which will minimise costs,' says Max Halliwell, heat pump specialist at Mitsubishi Electric (les.mitsubishielectric.co.uk).

Before investing in a system, seek independent advice at the Heat Pump Association (heatpumps.org.uk). In the past, one criticism of ASHPs was that they could be noisy. But in recent years, manufacturers have updated the fan technology and introduced new types of blade so the appliances have become quieter. Check the decibel level of the units you are interested in, and look for those that run at around 45dB, which is about the same as a loud fridge.

Affordability check

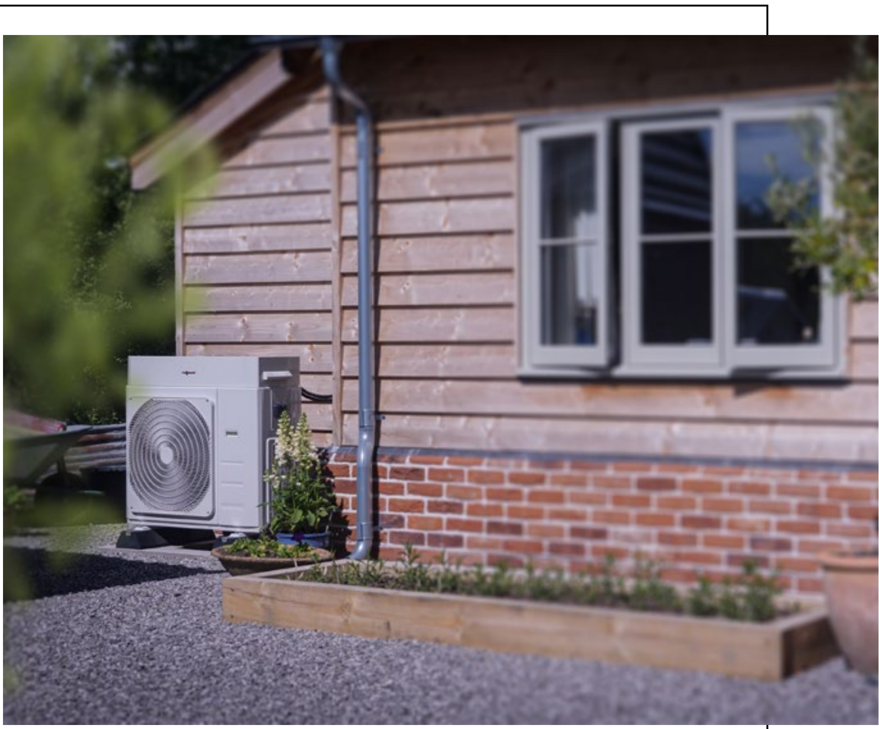
The price of ASHPs varies depending on the size of the unit, manufacturer, heat output and its level of performance. Efficiency is measured by its coefficient of performance (COP), which shows how much usable energy is extracted from the air compared to how much electricity is used to power the pump, so a COP of four means that for every 1kW of electrical energy used, 4kW of heat is generated. You should also look for the seasonally adjusted indicator of performance (SCOP) to compare like with like. The latter shows how effective heat pumps are on an annual basis.

Also, some models provide both heating and cooling, but these tend to be more expensive. 'The average cost of an ASHP for a three-bedroom detached house is between £8,000 and £10,000,' says Max. It is possible this outlay can be offset against financial incentives provided by the Renewable Heat Incentive (RHI).

The fitting process

ASHP installation is straightforward and can be completed in two to three days by an engineer registered with the Microgeneration Certification Scheme (MCS) once all the major construction work is complete. Visit the MCS website (mcscertified.com) for more information.

'In a retrofit project, the fan unit is fitted first, to an exterior wall, then connecting pipes are attached to a hot water cylinder,' says Max. 'The cylinder must operate on a low flow temperature that matches the heat pump. Unless an existing model is already compatible, it almost certainly won't work.' Similarly, you may need to install specially designed radiators with a bigger surface area than conventional ones,



ABOVE The owner of this self-build timber-frame home in Shrewsbury installed a Viessmann Vitocal 100-A air-source heat pump to power the underfloor heating. The compact unit is A+++ rated. (viessmann.co.uk)

or UFH. 'Self-builders can install the heat pump and go through the plumbing process with a compatible heating system,' explains Max.

The fan unit should be attached to an exterior wall, ideally a short distance from the cylinder inside the house. 'It measures around W900xD350xH700mm, although bigger houses may require a double-height unit,' says John Taylor, managing director of Enhabit (enhabit.uk.com). 'It could be put at the end of the garden, but this will increase the cost, due to the groundwork and ducting for pipework.' Inside, you'll need space for the cylinder – an airing cupboard should be sufficient.

Stick to the rules

Your heat pump must comply with Building Regulations – an installer can advise on this. ASHPs are currently covered under permitted development (PD), providing the unit is 1m away from the property boundaries and has a minimal effect on the building's appearance. See the Planning Portal (planningportal.co.uk) for more details.

How long will it last?

Providing it is well-maintained, an ASHP should last around 20 years. 'Some installers offer a maintenance contract, or it can be arranged directly with the manufacturer,' says Mark Partridge, managing director at Bright Green Renewables (brightgreenrenewables.co.uk). 'I recommend regularly removing leaves from around the unit, and having an annual service, just as you would with a boiler.'

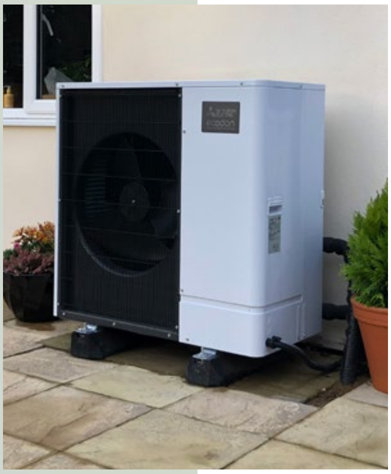
Signs that an ASHP isn't working properly include problems with radiators, underfloor heating or hot water, excessive noise, a pump that cycles between on and off, and increased utility bills. 'Most appliances have sophisticated controls and monitoring systems. If there's anything amiss or the appliance is underperforming, it should display an error message,' says Mark. 'This can be diagnosed and rectified by the installer.'

Before buying, check the length of the manufacturer's guarantee and the workmanship guarantee. 'Installers should provide a minimum of two years for the latter and manufacturers usually provide a three- to seven-year warranty on parts and labour,' says Mark.

Cost to run

Estimates from quote-comparison website Greenmatch (greenmatch.co.uk) show that for an average four-bedroom house with an ASHP, annual heating costs start at £759. 'Compared to a gas boiler, an air-source heat pump requires a lot less input energy. But gas can be cheaper than electricity,' says John Taylor. 'The lower energy use of the heat pump is offset by the cheaper cost of gas.'

But improving your home's thermal envelope by ensuring the building is airtight and well-insulated will reduce demand on the heat pump and keep the running costs in check.



TOP A detailed heating survey, including an assessment of the radiator outputs required, was completed before this Grade II-listed farmhouse and adjacent cottage were refurbished and fitted with a Vaillant Arotherm air-source heat pump (vaillant.co.uk). Abode Heat (abodeheat.com) provided technical details and scaled drawings, so that the homeowner was able to obtain building consent to install it. The heating costs for both properties have reduced by 35-38%

ABOVE As ASHPs draw in warmth from the sides and back of the unit and express it through the front, it needs to be outside, close to the house and uncovered. The Mitsubishi Electric Ecodan 11.2kW emits noise levels below 53 dB(A). (mitsubishielectric.co.uk)

TIPS FOR SUCCESS

Retrofit tips by **David Hilton** from Heat & Energy (heatandenergy.co.uk)

- Radiators will need an increased surface area to be compatible with the low flow temperatures of an ASHP. Effectively, you are changing the emitters from a radiant heat to a convective heat (turn to page 18 for a selection of suitable designs). UFH is particularly effective when used alongside a heat pump. Be sure to design it to have close pipe centres (no further than 150mm apart). You'll also need to install good insulation under the pipes to avoid conductive heat loss.

- An existing hot water cylinder will need to be changed for one that has a bigger, heat pump-compatible coil, plus a larger storage capacity. Hot water is stored at a slightly lower temperature, so a larger percentage of the water that comes out of the taps is from the hot water cylinder, and a small amount of blended cold water.

- Check your electricity supply is robust enough for a heat-pump installation. Some older properties and rural locations may not have enough capacity on the electricity lines to support some heat pumps.

PHOTOGRAPHY DAPPLE PHOTOGRAPHY, LUKE BROWN

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Feature **ANDREA MANLEY**

Whether you're updating a heating system or adding a new one to a self-build or extension, there's an array of radiators in increasingly inventive styles, colour and materials. Getting the right heat output for the space is vital. Radiators come with a BTU rating, which gives heat output calculated in British Thermal Units, so once you know how much heat the room needs you can choose the right size and style to suit.

Aluminium models heat quickly, but they also lose heat rapidly once switched off. Low-surface-temperature radiators and low-water-content radiators are efficient, using the minimum amount of energy to heat the space and are the perfect partner for a heat pump.

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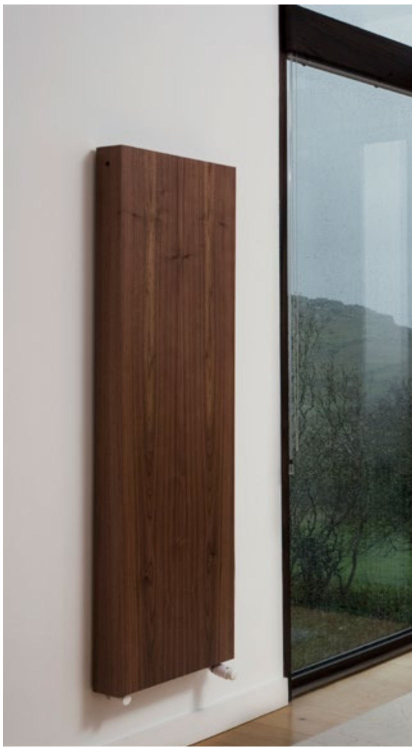
Aluminium conducts heat rapidly, so this warms up quickly. Astute Double vertical radiator in White (H1800xW466xD117.5mm), five sections, 2348/8010 Watts/BTUs, **£648** from Vogue. (vogueuk.co.uk)

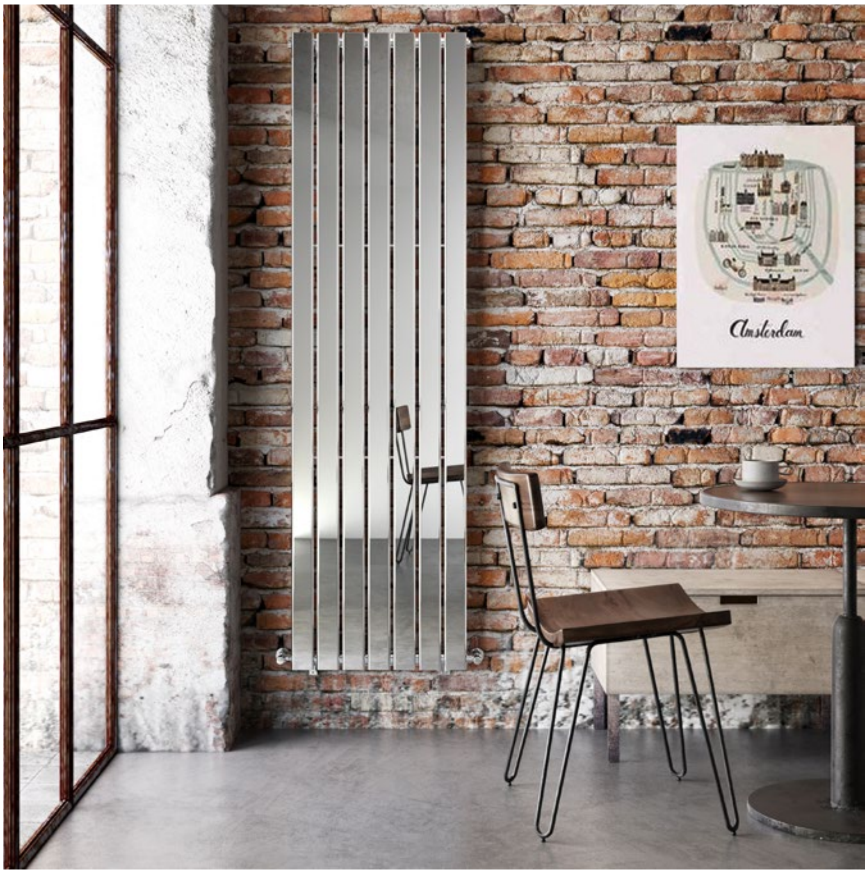
COLOUR POP
Milano Aruba Dark Blue horizontal radiator (H635xW1180xD78mm) is a smart choice for a living room. The double-panel steel radiator has an output of 2068/7056 Watts/BTUs and costs **£434.95** from BestHeating. (bestheating.com)

STATEMENT DESIGN
Aeon's Planet Moon radiator (H1810xW605xD45mm) is a practical heat source and eye-catching focal point for a bedroom. Solid aluminium plate with textured grey finish, 2651/9055 Watts/BTUs, **£2,283.82** from Aeon. (aeon.uk.com)

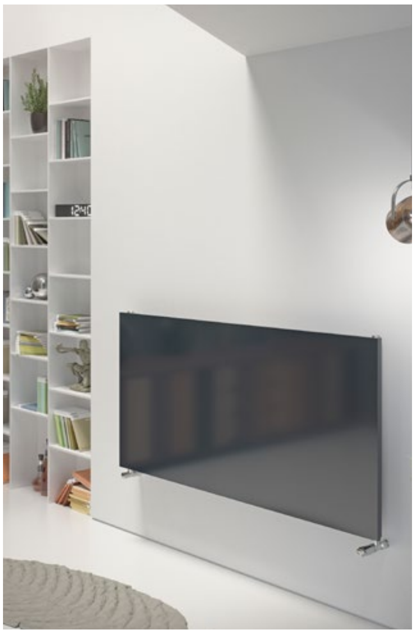
TRADITIONAL STYLE
Create an authentic look in a period home with a classic four-column 4F-60-101 radiator in Amethyst Quartz (H675xW1038xD136mm). With a high output of 1756/5988 Watts/BTUs, it costs **£1,476** from Bisque. (bisque.co.uk)



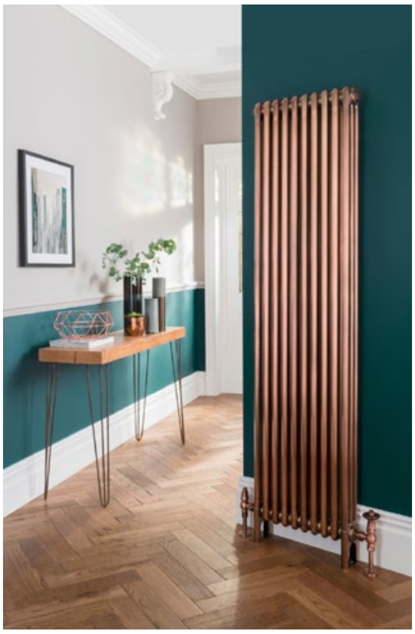
WARM WOOD
Outline Woody, an aluminium radiator with a walnut veneer (H1824mmxW454mmxD61mm), has a chic, streamlined look. Low water volume and a diverter fitted as standard means rapid warm-up when paired with low temperature heating systems. Output: 1241/4235 Watts/BTUs, **£2,374.80**, Eskimo. (eskimodesign.co.uk)



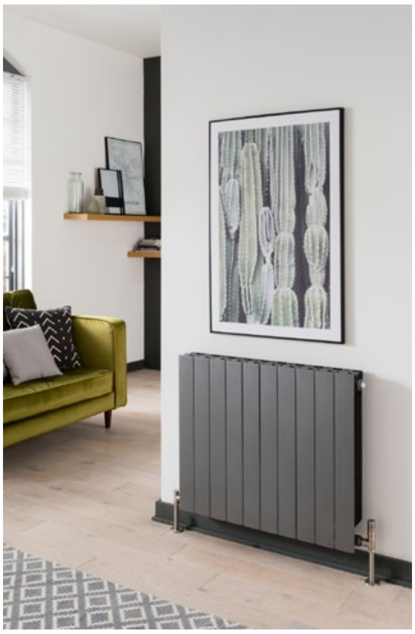
HIGH SHINE
Bathroom Mountain's Faro single chrome flat panel vertical radiator (H1800x490x84mm), 733/2501 Watts/BTUs, is a contemporary choice for any room, **£244.99**. (bathroommountain.co.uk)



ULTRA MODERN
Ximax Vertiplan horizontal flat panel radiator in anthracite (H1200xW595xD80mm) has a large surface area for plenty of heat. It also comes in white with an output of 766/2614 Watts/BTUs, **£329**, B&Q. (diy.com)



LUSTROUS FINISH
The Ancona Antique Copper three-column radiator (H1800xW474xD101mm) with 10 sections, 1180/4026 Watts/BTUs, is ideal for high ceilings. From **£2,592**, The Radiator Company. (theradiatorcompany.co.uk)



SPARKLE AND SHINE
Low-water-content radiators work efficiently with heat pump flow temperatures. VIP in Grey Sparkle (H790xW820xD95mm), 1610/5493 Watts/BTUs. **£815.28**, The Radiator Company. (theradiatorcompany.co.uk)

BLEND IN OR STAND OUT WITH BESTHEATING

Discover a contemporary collection of designer radiators and find the perfect finish for your interior schemes

Interior designers and homeowners have endured a long-standing love-hate relationship with radiators, especially those that stand out for all the wrong reasons. Thankfully, boring metal boxes and bulky, off-white panels are now a thing of the past, with attractive radiators designed to complement your style and become part of your home decor representing the new wave of home heating.

With their clean lines and minimal details, the designer radiators from **BestHeating** are inspired by modern architecture and functional Scandinavian design. Rather than simply providing heat, contemporary radiators from leading brands such as Milano combine form and function like a bespoke piece of furniture.

Complementing Nordic-inspired homes, neutral interiors and sophisticated schemes, radiators can now be a part of a carefully considered space, too. Moody matt blacks and understated anthracite, soft greys, polished chrome and even a vibrant spectrum of playful colourways mean white is no longer the only option. Designed to blend in or stand out, BestHeating's colours give you the opportunity to highlight the modern panel detailing on a contrasting wall, or disappear beautifully into the background for a seamless look.

Whether it's decorative oval-shaped Aruba panels or the clean linear designs of Alpha or Capri, contemporary radiators from Milano make stylish additions to gallery walls or shelving displays, or stand tall as a statement feature. Not only is the slim, flat-panel aesthetic easier on the eye, it's also perfect for modern homes that require a clever use of space, since it takes up much less room than older models.

And it's not only about the radiators – it's also about the finer details, with stylish valves in a matching finish completing the look. Modern radiators boast an impressive heat output, too. Just be sure to check the British Thermal Units (BTU) to help you select the right size of radiator to heat your home to a comfortable level.

Switching to an electric heating system? Many designer radiators at BestHeating are available as dual fuel or electric options supplied with a Bluetooth- or Wi-Fi-connected heating element to ensure your home is heated efficiently without sacrificing the style you love.

If choosing a new radiator is all new to you, BestHeating has an extensive archive of expert heating guidance to help. Just head over to the Advice Centre for more information.

BestHeating

LEFT Vertical Milano Aruba designer radiator, from £149.95 **TOP** Milano Windsor traditional column radiator, from £229.95 **ABOVE** Dark Blue Milano Aruba designer radiator, from £239.95

Warmed by the earth

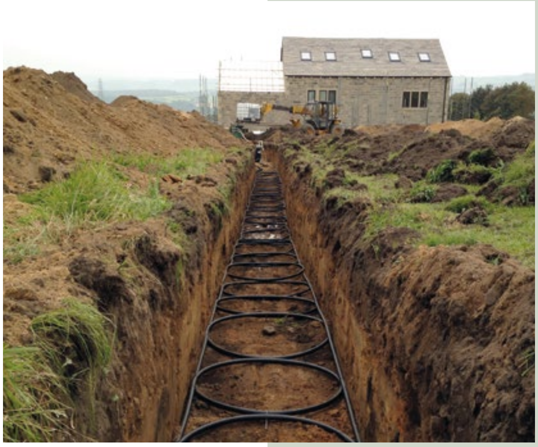
How to harness the plentiful thermal energy beneath our feet

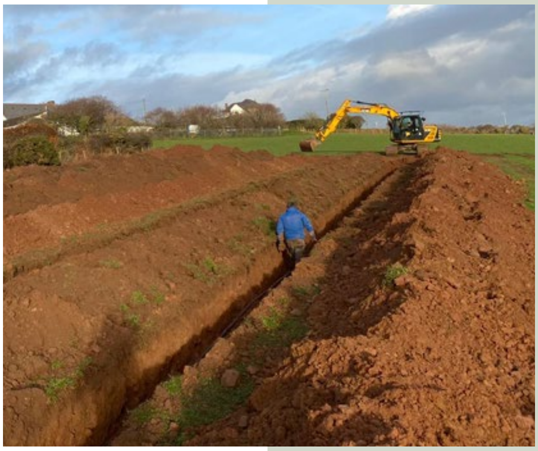
Feature **REBECCA FOSTER**

Two metres below ground, the soil maintains a fairly consistent temperature of around 10°C and is unaffected by cold weather. Powered by electricity, a ground-source heat pump (GSHP) extracts warmth from the earth using collecting pipes buried below the surface. A setup with pipework laid in trenches at a depth of around 1m is the most common option, but if there is a lack of sufficient space on the plot, a vertical borehole can be dug instead. A solution of water and antifreeze flows through the pipes, picking up warmth as it moves. This liquid is channelled to a heat pump unit, most often kept inside the house, where it is concentrated to a higher temperature and distributed to the heating system.

Installation basics

Your garden must be accessible to digging machinery with ground that is suitable for creating trenches or a borehole. Coiled pipes are known as slinkies, while a meander pattern is laid straight and runs back and forth. 'A typical three-bedroom house using slinky pipes laid in trenches requires about 40x12m of land,' says David Billingsley, director of sales at Kensa Heat Pumps (kensaheatpumps.com). 'Boreholes range from 60-200m deep and are around 150mm wide. If a home has insufficient land area for slinkies or no access for a borehole drilling rig, ground source may not be viable.'





ABOVE & LEFT The owners of a 300-year-old barn conversion in Wales worked with Gwres Glas (gwresglas.co.uk) to install a Kensa 13kW Evo GSHP (kensaheatpumps.com). Warmth is extracted from the ground via slinky pipes laid in trenches in a nearby field. The smart-controlled pump, buffer tank and DHW cylinder are kept in a utility room

LEFT A horizontal GSHP loop system, which involves laying piping in trenches to extract heat from the soil, requires land close to the house that is at least three times its total floor area, including upper floors. Trenches, such as this installation by Limitless Energy, need to be 1.2m deep. Allow for 10m of trench per kW of heat pump capacity. (limitlessenergy.org)

Typically, GSHPs are well suited to self-builds, as the plot will be excavated to put in the foundations, but that doesn't mean they aren't possible for renovations. 'It's a myth that GSHPs can't be successfully retrofitted into older properties,' says David. 'But the more thermally efficient a house is, the easier it will be to heat effectively with any type of system. Better insulation will result in higher heat pump efficiency and lower running costs.'

What's the cost?

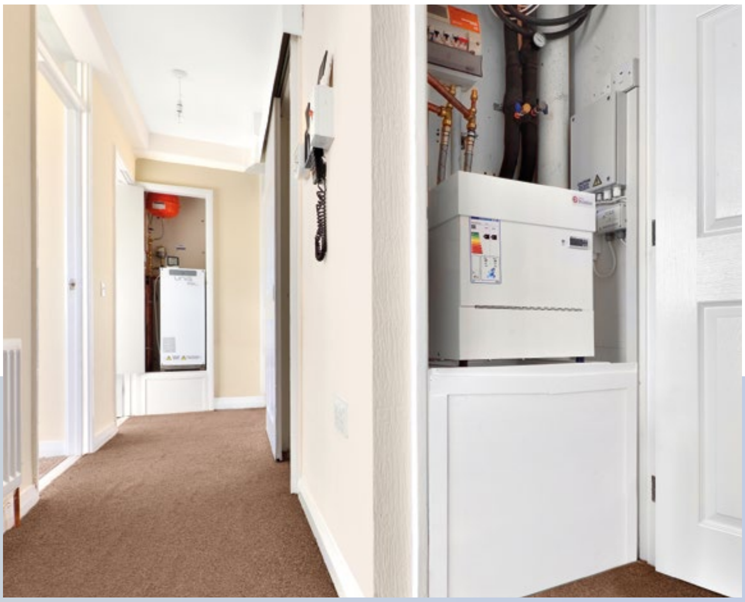
The output needed from a ground-source heat pump to meet your home's heating requirements will affect how much an installation will cost. 'The average three-bedroom UK home has a heat demand of 8-10kW,' says Phil Hurley, managing director at Nibe (nibe.eu). 'To supply and install a suitable pump using horizontal pipework would cost between £12,000 and £14,000,' Vertical ground-source heat pumps tend to be more expensive. 'A borehole installation can cost between £20,000 and £25,000,' he explains.

Units have a service life of around 20 years, while the collecting pipework can last up to 100. Plus, you may be able to recoup some of the installation cost from the government's Domestic Renewable Heat Incentive (RHI) scheme. Average running costs depend on the thermal efficiency of the building and its heat demand. 'The 9kW Evo GSHP would run at 0.44p/kWh with an estimated running cost of £887.40 per year, based on a 200sqm, four-bed new-build home in the south-west of England with a heat load of 8kW,' says David Billingsley.

Order of works

If building your own home, lay the collecting loops at the start of the project, during the groundworks phase. 'It is critical that accurate information about the property is known so that the system can be laid correctly,' says Phil Hurley. 'The pump unit is usually installed once the building is weathertight and the services are in place.'

The groundworks phase varies, but usually takes around three weeks. GSHP installation is subject to Building Regulations, and your local authority will need to be notified upon completion. The heat pump appliance is about the size of a fridge-freezer and most often kept inside the house. 'It's best to put the unit where it can be maintained easily,' says Phil. 'The area must provide an appropriate route for associated pipework, especially the ground collector loops, which need to be well insulated along the entire length.'



ABOVE The Shoebox GSHP unit from Kensa is designed for flats and new-builds. It is small enough to live in a cupboard, and has a heat output from 3kW to 6kW, producing hot watertemperatures up to 65°c. It costs from £3,686. (kensaheatpumps.com)

LEFT With a heat output ranging from 7kW to 17kW, the Kensa Evo GSHP is suitable for both existing and new-build three- to six-bedroom homes. It costs from £6,156. (kensaheatpumps.com)

Peak performance

GSHPs have few moving parts and upkeep is minimal. 'As electrically powered, non-combustion appliances, they require little maintenance,' says David. 'I advise homeowners to get their system – including radiators and/or underfloor heating, pressurised hot water cylinders, ground collectors and the heat pump – checked by a competent installer before the colder months set in.'

Having a good supply of hot water and effective heating are the surest signs your system is operating at its best. Some models, such as Nibe's S-Series and Kensa's Evo heat pump, come with a smart controller or app that allows you to monitor the setup in real time, so you will receive notifications regarding any problems.

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Breathe easy

The lowdown on a system that circulates warm, filtered air around the home

Feature **REBECCA FOSTER**

Mechanical ventilation with heat recovery (MVHR) draws stale air out of each room at an extraction point. The air is passed through ducting to a heat exchanger and expelled outside. The extracted warmth is transferred via the exchanger to fresh air flowing through a separate run of ducting into the rooms. Filters in the main unit remove particles so that the circulating air is free from pollutants. Usually installed in a loft, basement or plant room, the air-handling unit is the hub of the system. It is connected to a series of ducts that are attached to extraction and supply points.

Provide the best setting

MVHR is most efficient when fitted in a well-insulated, airtight home where warmth isn't going to leak out via the building structure. Installation is more straightforward in a self-build, where it can be designed into the plans from the start, but it is possible to incorporate the system into a renovation. Homes with open fireplaces are not suitable as the air bricks that supply air to the fire make the spaces too draughty.

ABOVE This three-bedroom earth shelter house in the Peak District, Derbyshire, is fitted with an MVHR system. See more overleaf

ABOVE The Airflow MVHR system ducting is deliberately left exposed on the ceiling of the energy-efficient home. (airflow.com)

Buyer beware

There are several things to bear in mind when choosing an MVHR. Take a close look at the controls. 'Are they easy to use? Is wireless control available? Are humidity and temperature monitored automatically?' says Patrick Chester, project manager and Passivhaus consultant at Enhabit (enhabit.uk.com). Check there is a F7 pollen filter for the fresh-air intake, especially if anyone in your home has asthma or allergies. Some units only have a G4 sponge filter, which keeps insects, hairs, large pollen spores and dust out. The F7 blocks smaller pollen spores, dust, bacteria and some smoke/oil fumes. If you want to zap everything, though, an electrostatic filter is even better.

Efficiency is key. 'The highest-quality units recover 96 per cent of the heat, while the poorest recover 70 per cent or less,' explains Patrick. The main unit should be well insulated. 'It's no good having a model with a great heat exchanger if the recycled warmth gets lost through the unit's skin,' says Clarissa Youden, associate director at Total Home Environment (totalhome.co.uk). 'Check on the specification sheet that there is about 30mm of thermal and acoustic insulation to the inside of the unit.'

You should also consider an automatic summer bypass – in warmer months, the heat from the outgoing air will not be recycled, but you'll still get a fresh incoming flow. 'With the UK's erratic weather, having a modular bypass that automatically opens in specific increments when the temperature changes is a must,' says Clarissa. 'But manual ones can be inconvenient.'

Selecting a model that runs quietly is also important. This is measured in decibels (dBA), with lower numbers indicating a lower noise level. Most main units operate at about 40-45dBA, similar to a fridge freezer, but this doesn't matter so much as the unit is usually installed away from living spaces. Check the noise level of the air valves in each room, too. They should be less than 25dBA.

Price guide and investment protection

There are variables that will affect the final cost of a system, from the size of your home to the type of ducts used. 'A good-quality MVHR, including the ducting, insulation and the controller, costs anywhere between £2,500 and £7,000,' says Clarissa. Installation is likely to cost upwards of £2,500, depending on the complexity of the project. Before placing an order, check the guarantee offered – in case anything goes wrong with the system. Guarantees for the whole setup will typically cover you for between two and seven years, depending on the supplier and whether you have opted into a maintenance scheme.

Order of works

Whatever kind of project you are undertaking, MVHR should be factored into the design at the start. 'The ducting must be installed within the fabric of the building, so it needs to be considered as early as possible,' says Lucy Holland, marketing executive at Airflow (airflow.com). 'When the duct paths are already planned and prepared for, it saves time during installation.' Long, straight runs provide a better channel for efficient airflow, so try and avoid bends where possible. MVHR can be installed once the house is wind and watertight, and the stud walls are up. Ideally, ducting should be fitted before first-fix plumbing and electrics.

Ducts are installed first, and any that run through unheated voids should be insulated. 'The air-handling unit is fitted at the finish, once the internal doors have been hung,' says Lucy. 'In line with regulations, internal doors must have a clear gap beneath to allow air to move around the house.'

MVHR systems should adhere to Parts F and L of Building Regulations, which cover ventilation and conservation of power. 'You may also need to be mindful of Part E (resistance to sound), Part B (fire safety) and Part C (resistance to contaminants and moisture),' Lucy adds.

ABOVE A MVHR system minimises the need for additional heating in this five-bedroom self-build home in Surrey, designed by Soup Architects. (souparchitects.com).

BELOW The house also has solar panels on the roof for hot water, while the cold water comes from a rainwater harvester buried in the garden

PHOTOGRAPHY ANDREW WALL, TITON

Running costs estimate

These can vary substantially depending on the size of the property and the number of rooms. 'A well-installed system will recover more energy than it uses, with typical running costs of £40 to £80 per year,' says Larry Soper, technical training manager at EnviroVent (envirovent.com). MVHR recovers as much as 80 per cent of the heat extracted from the house and will potentially reduce your annual heating costs as a result. Plus, you won't need to install separate extractor fans and hoods in your bathroom or kitchen. Your home will still require a separate heating system, but MVHR will ensure it runs as efficiently as possible by recovering energy that would normally be lost via other means of ventilation.

TOP & ABOVE Architect Jonathan Pile of the Oval Partnership UK (oval-uk.com) designed his own family home in Deptford, London. The energy-efficient house has two Zehnder ComfoAir 200 MVHR units; Jonathan consulted with Enhabit (enhabit.uk.com) on the design of the system. The house also has a meadow-planted, flat-roof solar thermal system to collect the sun's heat

Keep it in top condition

The vents where air comes in or out, particularly the extract valves, are prone to collecting dust and should be wiped down regularly. You'll need to clean the external grilles periodically, too.

A professional service is recommended every six years so the system can be deep cleaned.

Filters should be cleaned or changed every three months to a year, depending on local environmental conditions. A home near a busy road will need its filters cleaned more regularly than one in the countryside. 'Always isolate the unit when changing the filters – the best systems have a switch inside to automatically turn off the fans while they're being serviced,' says Lucy Holland. 'As well as being a safety precaution, this prevents the unit from sucking dirty air through the heat exchanger while the filters are out and clogging it up.'

Tell-tale signs that your MVHR is not working properly include evidence of condensation and mould growth. If the system is noisy, that may also indicate an issue. 'It's possible that the filters may be blocked and require changing, or that the system is experiencing a high level of resistance,' explains Larry Soper.

Some products such as Envirovent's Energisava 200 and 250 units come with an app so that you can monitor the status of the unit, adjust the airflow rates and get notifications when the filters need changing.

PHOTOGRAPHY JONATHAN PILE, GARETH GARDENER

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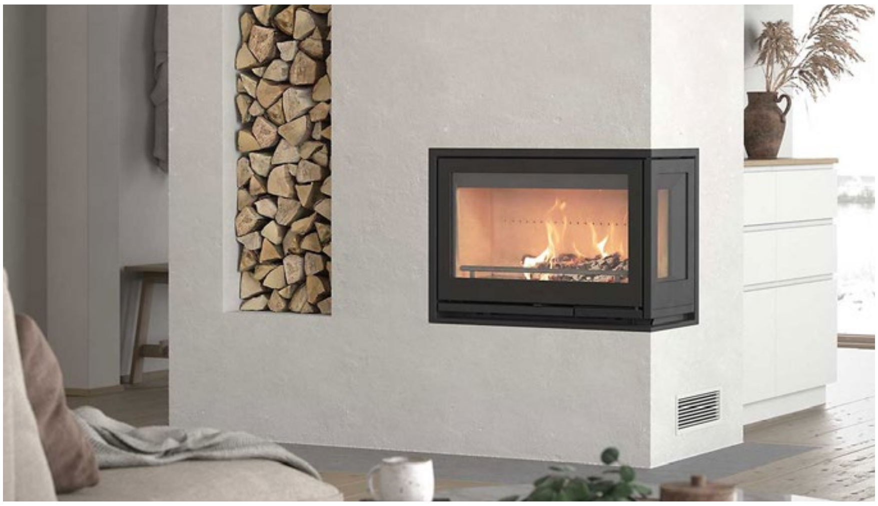
Focus on woodburners

Opt for a design that makes maximum use of its fuel to ensure an energy-efficient and eco-friendly stove

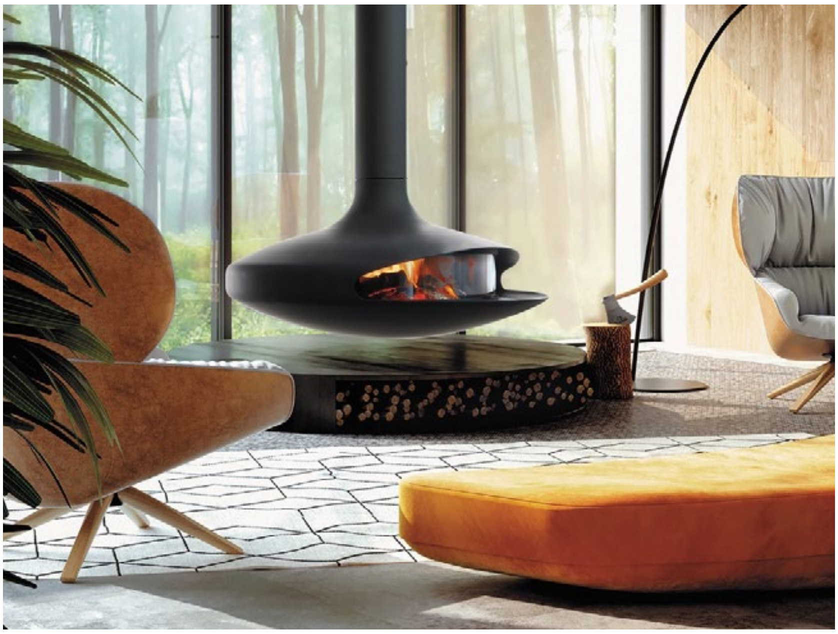
Feature **ANDREA MANLEY**

Whether you're after a contemporary design for an open-plan space or a traditional model for a cosy living room, woodburners have eco credentials that open fires can't match.

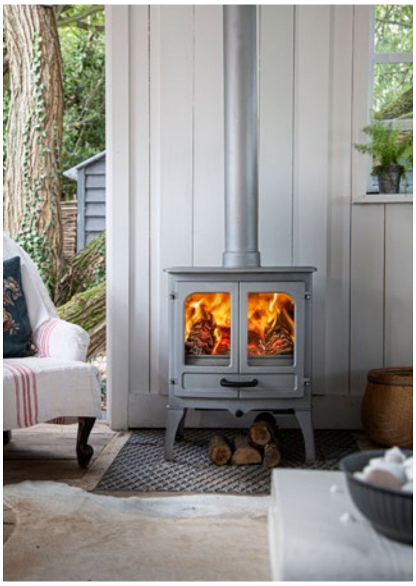
From January 2022, all new woodburning and multifuel stoves must meet Ecodesign legislation, requiring stoves to run at an efficiency of at least 75 per cent and to have smoke emissions of less than 40mg/m3. Look for the SIA Ecodesign Ready label when buying – all models shown here are Ecodesign ready. If you live in a smoke-control area, you'll require a model that offers a smokeless burn and is DEFRA approved.



MODERN STATEMENT
Contura's i8 7kW corner cassette stove (H530xW735xD365mm), with front and side windows, gives a good view of the flames, while the clean-burn system makes the stove efficient. **£1,995,** Contura (contura.eu)



SUSPENDED DESIGN
The Glazed Gyrofocus 360-degree pivoting woodburner (HbespokexW1180xD620mm) adds the wow factor to an open-plan room. Made from steel, with an elongated chimney and a frameless sliding glass window, its 18kW heat output means it will heat large open spaces. From **£15,360,** Focus Fireplaces (focus-fireplaces.com)



CLASSIC APPEAL
The 5kW Island 1 multifuel stove (H698xW551xD432mm), shown here in Pewter, burns wood and smokeless fuels. Clean-burn airwash technology combines efficiency with minimal emissions, and it's DEFRA approved. **£2,142,** Charnwood (charnwood.com)

BURNING DESIRES

As we head into winter, bring warmth to your home with the eco-friendly Charnwood Cranmore woodburning stove

With more time being spent in our homes over the past 18 months, many of us have rethought our interiors to create living spaces that are a pleasure to spend time in. There's nothing quite like a real log fire for creating a cosy and inviting room in which to unwind at the end of a long day.

Brit manufacturer Charnwood's stylish woodburning stoves combine a traditional form of heating with contemporary good looks and an environmentally clean burn.

Charnwood is a family-run brand, based in Newport on the Isle of Wight, where all its products are made. Founded almost 50 years ago by Alfred J Wells and two of his sons, the company was one of the first British manufacturers to develop a range of clean-burn stoves and, five decades on, it's still a brilliant ecological choice. Wood is a stable, C02-neutral fuel that can be locally sourced, while the sophisticated technology used to make Charnwood stoves has made burning it cleaner, safer and more economical than ever before.

All Charnwood stoves now meet the new ecodesign regulations that come into force in 2022, so even the most dedicated urbanite can enjoy the charms of a stove, with emissions so low that burning wood, even in smoke control areas, is clean and safe.

Its newest stove range is the Cranmore, which takes inspiration from the Regency era, with its single-framed glass door and archetypal detailing. The pleasing proportions of the Cranmore make it well suited to a traditional fireplace and with a large picture window, it is an ideal replacement for an open fire.

To find your nearest stockist, visit www.charnwood.com, or call 01983 537780

Complete your fireside with something from Charnwood's range of Fairtrade accessories, which includes everything from wood storage to tools. Made by artisans in Cambodia, pictured here is the stylish yet practical blow poker, handcrafted from steel with a turned wooden handle.

TOP Charnwood Cranmore 7, from £1,794
ABOVE Charnwood Bodj Blow Poker, £89

BUILT IN
Inset woodburners built into a wall or false chimney breast are a good idea if space is limited. Stovax's Studio Air 2 with Profil frame and white decorative trim (H476xW978xD348mm) has an 8.2kW heat output, rapid boost mode and is DEFRA approved. From **£2,749,** Stovax (stovax.com)

MULTIFUEL STOVE
The Solis multifuel (H1004xDia480mm) is a contemporary model with a brushed-steel door handle, integrated storage box and a top flue outlet. It has a 5kW heat output and is DEFRA approved. **£1,610,** ACR Heat Products (acrheatproducts.com)

WHITE CHOICE
Architecturally striking, the Scan 66-5 woodburning stove with S base in gloss white enamel (H943xW1037xD337mm) also comes in black. It has a 5kW heat output and is DEFRA approved. From **£2,985,** Scan (scan.dk)

PANORAMIC VIEW
Jotul's F373 Advance (H1150xW442xD452mm) sits on a pedestal base and gives an excellent view of the flames from the large front and side glass windows. DEFRA approved, with a heat output of 5.9kW, it comes in a variety of finishes, including white enamel. From **£3,360,** Jotul (jotul.co.uk)

PELLET STOVE
Relatively new to the UK, pellet-burning stoves burn compressed wood or biomass pellets, which are convenient to store and burn more efficiently than wood. The Hera (H1200xW530xD530mm) has a 7kW output. From **£2,462**, MCZ (mcz.it)

ELEGANT SOLUTION
Tall and cylindrical, the Morso 4143 (H980xW459xD364mm) has a large, reflective glass door and white glazed finish. Incorporating an open log store, the stove is DEFRA approved and has an output of 5kW. **£1,950**, Morso (morsoe.co.uk)

FOCAL POINT
Much more efficient than an open fire, the Westfire Uniq 32 inset glass-front stove (H570x W1000xD410mm) has a 7kW heat output, is DEFRA approved and features an airwash system to keep glass clean. **£2,820**, Eurostove (eurostove.co.uk)

FLICKERING FLAMES
With a large viewing panel and sleek frontage, the stylish Hoxton stove with low pedestal (H771xW545xD425mm) is DEFRA approved and has a heat output of 7kW – suitable for heating large spaces. **£2,474**, Arada Stoves (aradastoves.com)

HERITAGE COLOUR
Traditional in style, Carron's Ash Grey Enamel Eco multifuel stove (H534xW480xD350mm) is a compact model made from cast iron and features clean-burn technology. It has a heat output of 5kW and is DEFRA approved. **£1,253.50**, Carron (carronheating.co.uk)

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